

COAL AGE

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Car Shortage and Costs

IRREGULAR operation of coal mines, from whatever cause, increases costs of production. Lack of orders at times is the main cause for irregular daily operation; today it is lack of railroad cars in which to load the coal. Proper distribution of cars will do much to lessen the cost of operation even on short turns.

In the East it is the general practice of the railroads to seek a daily distribution of a short car supply equally among the mines served. If the cars available on a given division are sufficient to satisfy but half of the orders for cars, then the car distributor seeks to give to each mine one-half its rating. Quite often the supply of empties comes in small lots; a few may have been shunted in late the night before and throughout the morning additional cars be spotted. The mine superintendent seldom knows when he starts with the few cars whether or not more will be forthcoming. He must keep his men on the job if there is any expectation that more cars will come, for if he shuts down and fails to load such cars as are put in later in the day, these cars are counted against his allotment twice—once for the day delivered and again the next day.

This daily uncertainty plays hob with costs. During the waits for cars the main haulageways become choked with loaded trips. The tippie men stand around with nothing to do. The whole force draws pay with no work to do.

In some of the Middle Western fields the operators and railroad officials long ago got together to remove this irritating and unnecessary trouble. They agreed that the best interests of both parties were served when a mine was supplied with cars for a full day's operation. Accordingly when the car supply was sufficient for but, say, two days per week, the mines would be served in turn with a full run of cars for two days each week, and would stand idle the other four days. The superintendent thus is able to tell the men in advance when the mine will run and the men know that when they turn out they will get a full day's work. Inequalities arising in the distribution are equalized each month, so that each mine knows that it got its full share of the cars supplied the district. When the mine is going all are busy, not sitting around part of the time wondering whether more cars will appear.

The compelling reason for this development in parts of Illinois and Indiana, for instance, is not present in the East. In this Western territory the mine workers for the most part live in towns at a distance from the mines and ride to work on trains. They long ago rebelled at the early rising and trip from town to mine only to find no work or but part of a day's employment. In the East the mine workers for the most part live in close proximity to the mine and suffer only the early rising should there be no cars and easily make their way home when the supply fails. But the operator has relatively higher payroll cost in the East than in the

West because of the difference in practice. Why can't the Eastern operators get together with their railroads on such a basis for car distribution and save themselves money and their mine organizations much trouble?

The Value of Time

IN ANCIENT Rome no paid or voluntary fire force kept guard over the city. Every man waited till he had a fire; then he organized his own force—himself, his wife, his family, his slaves (if he had any), the passing mechanic or the expectant beggar. Now it happened that Crassus noted this defect and sought to make money from the remedying of it. Note this from the historical author Charles Oman:

Still more astonishing was his amateur fire brigade and the way in which he used it. He got together a body of five hundred workmen—carpenters, masons and the like—provided them with ropes, buckets, ladders and tools. Whenever there was a fire (and fires were as common as they were dangerous in the crowded city) he went down at the head of his gang and called on householders whose property was in the immediate neighborhood of the conflagration. He then offered to buy their houses as they stood at a very low figure. If the terrified owner consented the fire brigade was turned on and the mansion generally preserved. If he refused, Crassus went away with his men and let the fire do its worst.

A bad bargain when every minute meant immense loss, yet is it not true that many a bargain is made today under a like stress even where it is not felt especially by the purchasing agent who is making it? Many a mine foreman in a large company, seeing a clear profit in a new piece of machinery, is obliged to wait while the requisition is held up by the indifference of the chiefs above him and then finds that the purchasing agent delays the placing of the order in the hope that by shopping around he may be able to show a saving of a few dollars. Meanwhile the cost is mounting around the mines, archaic methods are demanding their toll of unnecessary expense, the output is being restricted and the uncompleted work is jeopardizing life. The change proposed must be made, and the sooner the better—the sooner the machinery is installed, the more loss will be avoided. The old Roman who disputed *aurei* with Crassus when his house was burning was little more foolish than the modern American who disputes dollars while the losses from inefficient labor, reduced output and danger are piling up.

Prudence in buying, a little shopping around, if done diligently, may be excused, but due care should be taken lest the loss by delay exceed many times the gain to be attained by circumspection and even many times the whole investment to be made. A tendency among purchasing agents is to hurry orders for replacements, rightly believing that such re-establishment materials are indispensable, but often a new piece of machinery that will afford economies in operation is of equal or even greater importance.

Are Income Tax Returns Significant in Company Profit?

TWO of the subjects to be studied by the fact-finding commission appointed by President Harding are the cost of producing coal and the profits of the operators. The commission is directed to extend its studies over the last ten-year period. Data accumulated by the various government departments will be utilized by the commission. If conclusions drawn from these data are to be of value it is essential that the data be comparable or that the difference in the bases for different periods be understood and explained.

The statement is frequently made that in the period prior to the war most bituminous-coal mining companies lost money. How much the industry lost as a whole can be ascertained to some extent by a compilation of the figures from the income tax returns of coal-mining corporations since the income tax has been a feature of government reports—since 1913—and by taking into consideration the excise tax of 1909. If income (taxable) had been uniformly defined during that period, some value might be attached to figures obtained from that source, but with the changing laws this comparability has been destroyed. Figures from that source lose value for purposes of comparison again from the fact that statistics of the Internal Revenue Bureau are built up on the basis of the state in which the corporation's charter was obtained rather than of the state in which the mining operations are carried on. So, from the standpoint of results comparable with the information collected by the Geological Survey, the Federal Trade Commission and the Fuel Administration these figures will have to be eliminated.

Although eliminated from the standpoint of statistics, the income tax figures cannot be ignored because of the effect of the laws and regulations on the accounting methods of the coal operator as a taxpayer. Following the line of least resistance, he usually has adapted his bookkeeping to the requirements of the tax law in force, although, because of the slender margins obtaining in the early part of this period and the low tax rate, he frequently did not take advantage of the privilege accorded him of proper deductions for depreciation and, after 1913, of depletion. Books were frequently kept more with an idea of forcing a profit for the encouragement of the stockholder than of showing true production costs.

A summary elsewhere in this issue of *Coal Age* of the federal tax laws of the past ten years as they bear on this question discloses marked differences in the methods of arriving at the basis of taxable income, which is the basic figure required by reports to the Internal Revenue Bureau. Taking into consideration the additional values to be set up by revaluation of mineral, leaseholds, and plant and equipment, this difference may in certain instances run in excess of 25c. per ton for periods prior to and after 1913.

In the autumn of 1917 the Federal Trade Commission issued its first form for the collection of costs. In general it followed fairly closely the accounting practice of those companies that had made any considerable study of production costs. It made provision for the setting aside of funds for mining hazards, or "contingencies," as the account was designated. A similar provision was made for the regulation of extraordinary expenses through the establishment of a "maintenance reserve" account. In the compilation of these reports the Trade

Commission and the engineers' committee of the Fuel Administration found considerable difficulty with the two accounts mentioned and it is understood that an arbitrary allowance of several cents per ton was made by the latter for contingencies.

The form of report adopted for 1918 took maintenance and repairs of structures and equipment out of the detailed operating classification and set up separate figures for them. Miscellaneous profits or losses incident to operation of the mines also were taken out of the schedule of miscellaneous income and made debits or credits to cost. With these exceptions the results obtained were, generally speaking, comparable with the 1917 figures.

The Federal Trade Commission attempted a very elaborate form for 1919 costs in which it was sought to make separation as between operation and maintenance throughout the operating schedules. The commission was never able to put this form into effect because of lack of appropriation and lack of support of the Fuel Administration.

They revamped their scheme of cost forms for 1920 and sought to provide for inclusion in labor cost under maintenance and repairs of the repairs on miners' houses, which had theretofore been carried as a debit to the rent account and the net result shown as a miscellaneous profit or loss. Supplies were handled in the same manner. They also contended that the value of the coal produced at the operation and used under the boilers should be excluded from power costs.

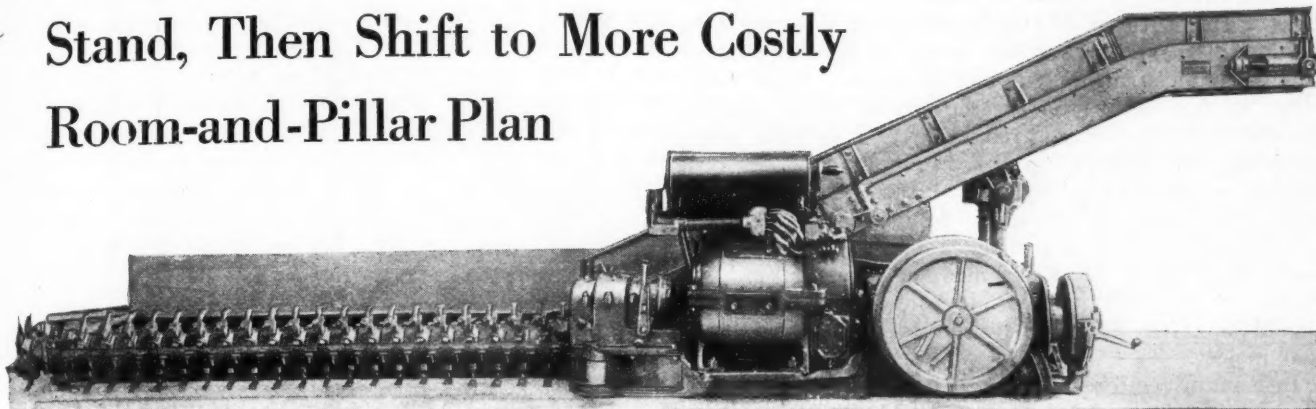
The tendency of the Trade Commission thus has been away from the general policy of the Treasury. The differences were pronounced and eventually caused the split between the National Coal Association and the commission. The Treasury permits such charges as do not materially increase the production to be deducted as expense. The Trade Commission, where the items could be identified, is understood to have eliminated them or to have spread the charges over a period sufficiently long as to not distort the general average. Doubtless many such items were of necessity passed without change, because of the impossibility of positive identification.

The Treasury Department permits the depletion charge to be based on March 1, 1913, valuation. The Federal Trade Commission provided that such charges must be made on the basis of cost. The same rule would naturally apply to the amortization of the value of leases.

In the case of depreciation, the same differences of application would necessarily follow. The instructions of the Trade Commission were to the effect that plant and equipment were to be depreciated at a rate per cent, and did not countenance deduction on the basis of depletion or a rate per ton, while the Treasury Department allows either method at the option of the taxpayer, and in addition the deduction of composite depletion and depreciation, if the taxpayer so elects. The cost of fuel is permitted by the Treasury Department. The later forms of the Trade Commission do not permit its inclusion in cost.

The 1920 forms of the commission instructed that the cost to the present owner of development of the main tunnel, shaft, slope or drift plus the estimated future cost of such work should be amortized pro rata with the exhaustion of the coal recoverable through such development. The Treasury Department does not permit the deduction of *prospective costs*.

Work Longwall by Machine Loaders as Long as Roof Will Stand, Then Shift to More Costly Room-and-Pillar Plan



Speedy Extraction of Coal Will Increase Safe Working Span—Goaf Is Not Expected to Fall Till Weakened Further by Room-and-Pillar Mining—Loader Works Its Way Under Shot Coal Face

BY M. R. MARTIN*
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BECAUSE room-and-pillar mining is the form of operation most in use in America, the thought and efforts of designers of underground-loading machinery have been directed toward perfecting a machine that will operate successfully and economically in a mine thus laid out. Experience has proved that the success of, and economy in, machine loading hinges directly on the car supply to the loader, and unless a machine is given many more than a miner's turn of cars, it cannot and will not be a success.

In room work, unless the face is turned on an angle of, say, 45 deg. (the degree of the angle may, of course, be greater or less), only one car at a time can be supplied to the loader, which means that while the load is being taken away and an empty is being supplied the machine must be shut down. The manner in which this is accomplished, whether by motor, mule or man power, would be an item of expense that would detract considerably from the saving made by machine loading. Another item of expense involved is the time lost in "flitting" the machine from one narrow place to another.

WHY LONGWALL HAS OFTEN BEEN A FAILURE

To obviate these and other objections inherent in the loading of cars at one end some method must be adopted that will provide a long working face, so that the machine can be supplied uninterruptedly with cars. Longwall, where it has been attempted in this country over any large area, has not been successful for the reason that we cannot bring ourselves to the painstaking and, as we view it, expensive methods of building packwalls behind the working face to protect the overlying strata. The use of posts or timber chocks does not serve the purpose sufficiently well, and the result is that longwall working in the regular sense has proved unsuccessful. It might be added that uncertain labor conditions have had as much to do with the failure as

any other one cause. Machinery, of course, will reduce that difficulty considerably.

Longwall, or block mining, in the United States, where packwalls or gob stowage are not used, has followed two general lines. One method is to form blocks and commence the mining either inward or outward on one side of the block, proceeding until from 10 to 25 per cent of the block remains. This much is left for protection, because if it were mined out in its entirety



FIG. 1—VIEW FROM COAL-FACE END OF LOADER

In this view it will be noted how the bits lift the coal and toss it onto the conveyor. As these bits revolve they can, if it is so arranged, scrape the bottom free of any coal left by the mining machine.

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NOTE—Headpiece shows side view of American car loader with the loading bar on the left. The conveyor lies alongside it. When the loading bar revolves the bits on its periphery lift the coal onto the conveyor.

and the work continued to the next block, the distance between the two supports of the beam would be so great that the weight of the roof would break it down.

Once broken, it would be impossible to regain the face or side without driving another entry through the solid coal providing a pillar large enough to support the overlying strata or one end of another beam. The other method is to mine on the end of blocks that lie parallel with the entry, proceeding to a definite point, stopping, and picking up the mining on another end, leaving a block of coal to support the end of the beam away from which the mining is being carried on. Lack of recognition of these principles has been the cause of many failures in block or modified longwall mining. Either of the two methods just mentioned may and should be criticised severely because with them much coal is lost.

In certain sections of West Virginia the method of mining adopted must be such as will convince the lessor of the coal land that as much coal as possible will be recovered. And when such land-owning companies can show that from 90 to 95 per cent of their workable seams are being recovered by their approved room-and-pillar methods, it is not likely that they will consent to a change in the system of mining until convinced that the same high percentage of recovery can be obtained by the system replacing it. It also is true that where the lessor is exacting in his requirements as to the

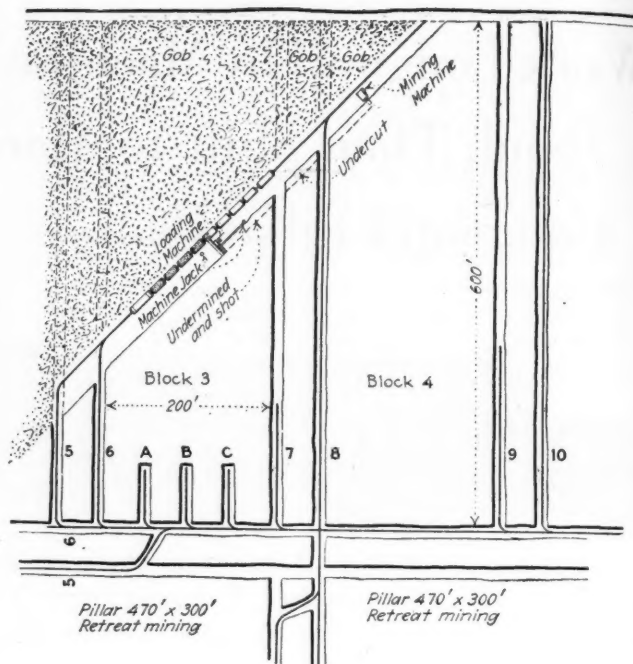


FIG. 2—DETAIL OF LONGWALL AND ROOM WORKING

As the triangular area gets to have a span which, with the particular roof and overburden, may be regarded as approaching a limit, the longwall face is abandoned and the work of drawing the blocks is pursued from rooms where there is less opportunity for rapid, cheap and effective operation.

method followed, the result is better and more economical mining.

The plant of mining outlined in Fig. 3 is believed such as will assure as high a recovery as, if not higher than, can be obtained by room-and-pillar methods. Vary-

†This plan of mining was designed and description given me by P. A. Grady, general superintendent of the A. J. King group of mines, Huntington, W. Va.

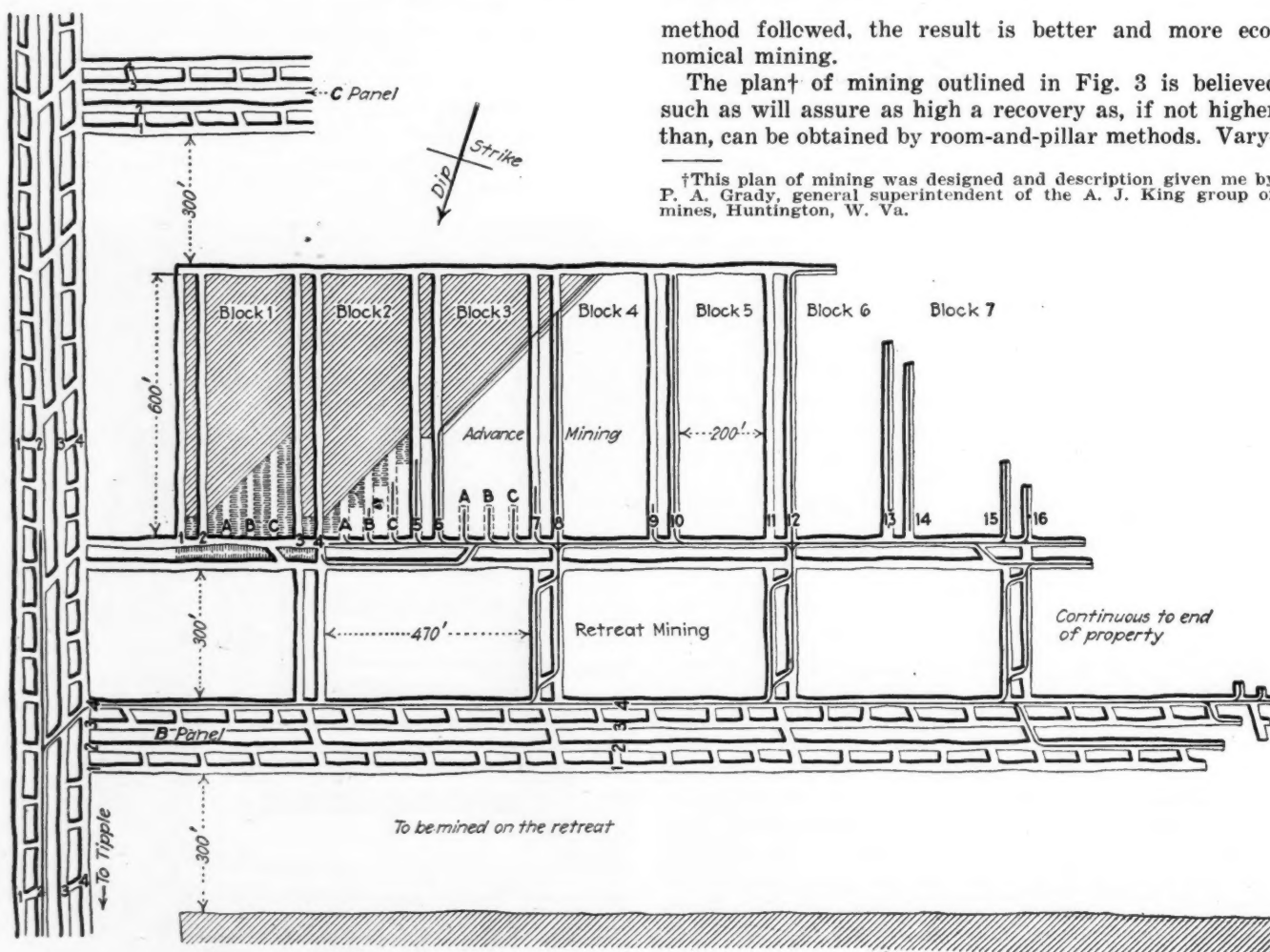


FIG. 3—METHOD OF MINING WHERE ROOF IS GOOD AND LARGE AREAS CAN BE MINED WITHOUT CAVING

As long as the roof will permit of the practice, coal is taken out by retreating longwall and without packwalling or the building of chocks. Speed in operation is relied on to increase distance over which this can be done. As soon as a break of the roof may be anticipated the longwall is abandoned and rooms are driven in the big block pillars, and coal is recovered by room-and-pillar methods.

ing conditions may determine the length and width of the blocks as well as the pillars, though the greater the length, the larger the production and degree of concentration attainable.

For explanatory purposes the driving of entries and rooms to form the blocks will be called the first mining. Just as soon as the first block is formed mining can be started to draw it back. This will be termed the second mining. The angle at which this mining is done is a matter of choice and conditions. An angle of 30 deg. will provide a much longer working face than will an angle of 45 deg., as shown in Figs. 2 and 3.

The distance that mining can be carried on the end of the blocks is unknown. However, mining men who have had much experience mining a longwall face away from a barrier pillar, as is done in this instance, where the roof becomes a supported beam with one end resting on a barrier pillar, the other on the end of the adjoining block, know that it is possible to draw the block a long distance before the first great fall takes place. It is a well-known fact that if a large number of men are put to work on a face of this length, the retreat will be quite rapid and the work can proceed a great distance before the roof makes its first break. By reason of this fact we know that through the use of mechanical loaders it is entirely possible to extract the whole block so rapidly that the roof does not have time to break down until it is entirely worked out. To accomplish this some timbering must be done, though,

for obvious reasons, this is not shown in the drawings. If after taking the face back a certain distance it is found that the roof will break, making it difficult to maintain the long face, the remaining coal can be obtained by driving rooms as indicated by dotted lines, drawing the pillars as in ordinary room-and-pillar work advancing. This is called the third mining and it need be used only where the longwall face can be maintained for only a limited distance away from the barrier pillar.

The track arrangement as shown provides for a continuous advance of the block sections. The room switches have to be reversed before the second mining of any block. At the mouths of rooms Nos. 9 and 10 the switches are already turned and are waiting for the longwall to reach them. From room No. 12 is shown the track layout for the first mining of rooms and entries. Much sidetrack is shown in the haulway rooms from the main entry or B-panel entry, and at no great distance from the producing faces. This B-panel entry, once started, is continuous to the end of the property, and once the development has reached the point shown the maximum production can be maintained during the entire life of the mine, as only one-half of the coal is taken out on the advance, the other half to be recovered by the same method on the retreat. In laying out a new mine on this plan, it would be well to have the main entries removed far enough to the right of the property to permit a certain quantity of coal on the left to be recovered by room-and-pillar methods, until the coal

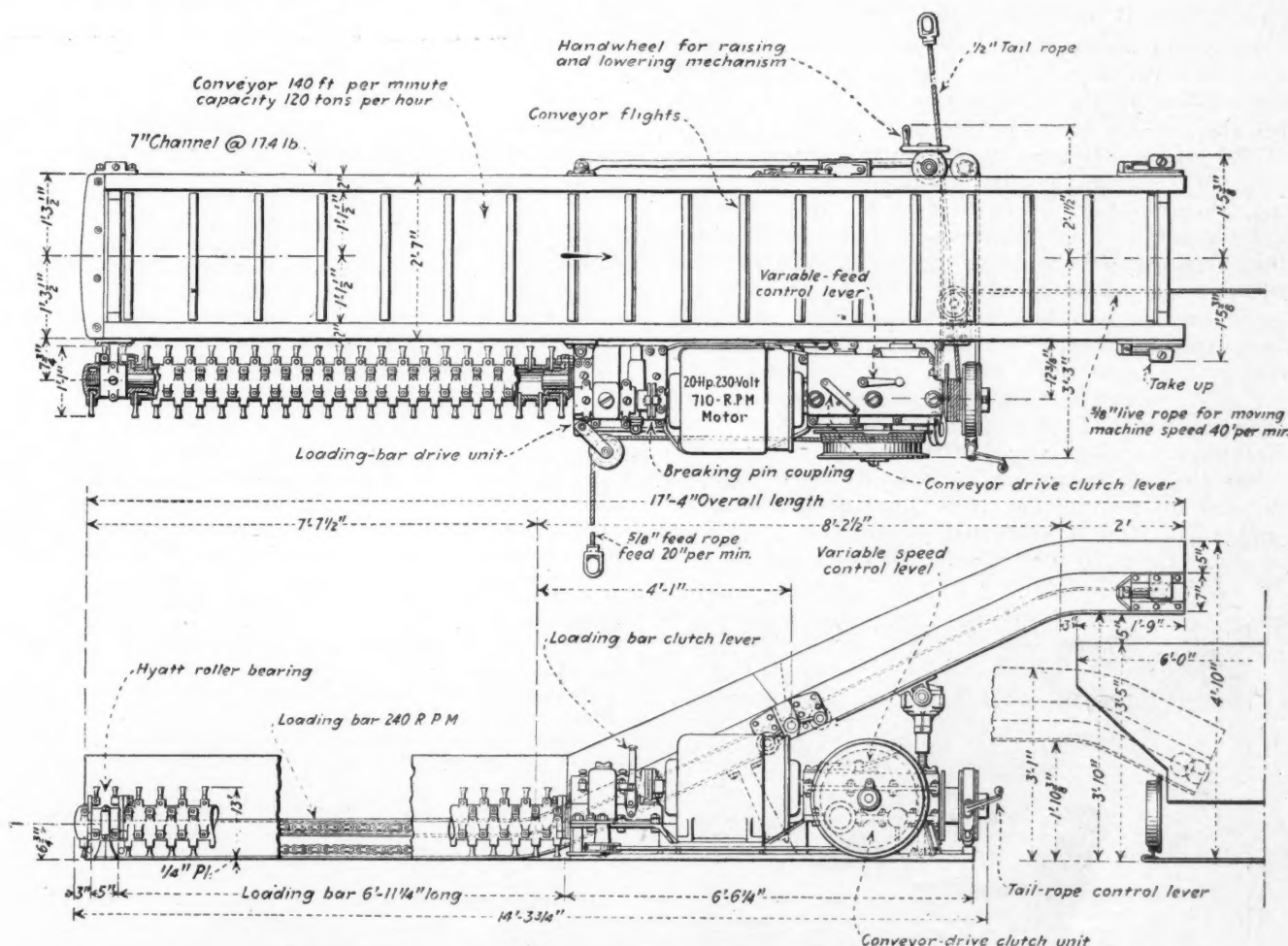


FIG. 4—PLAN AND ELEVATION OF LOADER AT WORK AT BUFFALO EAGLE COLLIERY CO., BRAEHOLM, W. VA.

On the right can be seen the position the machine conveyor would assume in loading another conveyor extending along the face, the upper surface of the machine conveyor being at its highest point 29 1/2 in. above the floor of the mine. The bar under-

mines rather by engaging the coal and lifting it than by removing and undercut. The coal is already shot down and free of the roof, so it is readily lifted, especially after part of it has fallen down into the conveyor and been carried away.

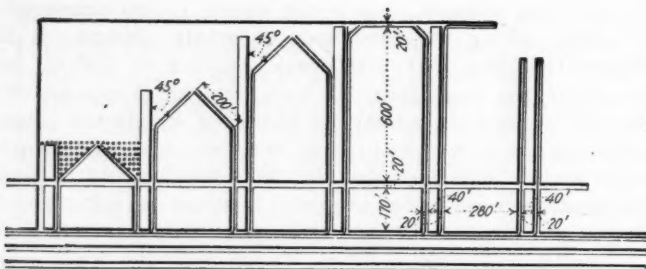


FIG. 5—ANOTHER SYSTEM OF OPERATION

In this case the blocks are worked in two cuts at an angle of 90 deg. to each other and 45 deg. to the room line. For security pillars are left between blocks, thus helping to hold up the roof. This, however, causes an inevitable loss of coal.

on the right has been sufficiently provided with entries and rooms for its development in accordance with the outlined plan.

Reference to Fig. 2 shows an enlargement of blocks Nos. 3 and 4 and the method by which a loading machine is being worked on this plan. This drawing also shows the intense concentration possible under this plan of working. This machine is shown in the headpiece and Figs. 1, 4 and 6.

It operates on the principle of a shortwall mining machine, being propelled along the face in the same manner. It is equipped with a drum, which winds a wire rope the loose end of which is secured by a machine jack set against the floor and roof of the mine.

COAL IS LIFTED BY BAR ONTO CONVEYOR

Instead of the flat cutter bar used on an undercutting machine a round bar $7\frac{1}{2}$ ft. long has been substituted. Chisel-point mining-machine bits have been set in the periphery of the bar, and this bar, rotating at a speed of 200 r.p.m., lifts the coal onto the conveyor, which runs parallel to it. The bar also does the bottom scraping, which ordinarily must be done by hand. One who has not seen the machine operate probably would assume that this bar, revolving as it does at a high speed, would grind and break up the coal, but the only real tearing action is in bottom scraping, for in reality the bar comes in contact with only a small portion of the coal loaded, most of it falling onto the conveyor, by virtue of the fact that the machine undermines the coal.

The best way of shooting the coal for loading by this machine is to use only half of the normal charge. This leaves the coal in a tight or standing shot, saving in the cost of shooting and increasing the percentage of lump coal. This machine will deliver coal to suit the height of the mine car. Where face conveyors are used

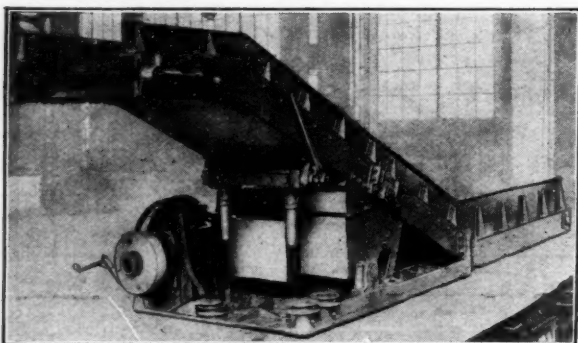


FIG. 6—QUARTER VIEW FROM DISCHARGE END

In the view will be noted the way in which the conveyor is held in place and the manner in which it can be adjusted so as to deliver coal at as low a point as the height of the mine car or conveyor will permit.

the height of the motor on the machine will be the determining factor. A drop-front truck is provided, the machine loading and unloading under its own power. The truck is not self-propelled, however, but has to be drawn by a locomotive whenever it is necessary to move it from one place to another. Such transfers do not often have to be made when a system such as the one just described is used. The conveyor has a rated capacity of 120 tons per hour. The actual capacity, of course, is determined by the speed at which the machine is fed into the coal, the height of the seam, and the depth of the undercut.

An actual stop-watch test made by disinterested parties at the mine of the Buffalo Eagle Colliery Co., Braeholm, W. Va., gave the following results:

TEST OF LOADING MACHINE AT BRAEHOLM, W. VA.

Number of cars loaded in test	20
Level full capacity of cars, tons.....	2.75
Height of coal, feet	6½
Depth of undercut, feet	6
Time required to load 20 cars.....	31 min. 40 sec.
Time out setting jack	1 min. 40 sec.
Average time per car	1 min. 30 sec.

Conditions for this test were much the same as shown in Fig. 5; a motor was in constant attendance pulling the cars past the loading machine. Three men operated it, one man controlling the movement of the machine, another breaking down any coal that adhered to the roof (caused by small binder in the coal), and the third man topping off the cars. This machine is manufactured by the American Coal Loading Machine Corporation, of Huntington, W. Va.

MINE OFFICIALS SHOULD KEEP ABREAST OF UP-TO-DATE SAFETY PRACTICES.—The safety of coal mines and miners cannot be assured if the men in charge are not familiar with safe methods. The following recommendations, therefore, are offered by the U. S. Bureau of Mines:

(1) All persons in responsible charge of the direct operation of coal mines—including superintendents, foremen, firebosses and shotfirers—should be required to have certificates of competency issued by the state, showing that the applicant has passed an examination clearly establishing his knowledge of what constitutes up-to-date safe practices in the branch or branches of mine operations under his jurisdiction. All such certificates should be revocable by the state for cause, should expire after five years, and should be renewed only upon taking another examination. The latter requirement would compel all operating mining men to keep conversant with progressive safety practices.

(2) Mining companies should require superintendents, foremen, firebosses and shotfirers to keep thoroughly familiar with requirements of state laws, as well as with up-to-date practices in regard to ventilation, dust, electricity in mines and explosives. If possible, this information should be conveyed by lecturers or specialists conversant with the best current practices, otherwise the companies should provide for sending current mining literature to its mine officials.

(3) Each mine should make a special study of its gas and dust condition. It might be advisable to enlist the services of the U. S. Bureau of Mines, whose coal-mining division has made and is making extensive studies as to the prevention of explosions in coal mines.

AT THE PITTSBURGH (PA.) EXPERIMENT STATION of the U. S. Bureau of Mines a complete study is being made of the Burrell gas indicator as applied to the analysis of air mixed with methane, hydrogen and gasoline vapors. Both the theory on which its operation is based and its practical uses are being considered and a few improvements will be recommended.

Power Used at Twelve Collieries and Its Distribution For Eight Separate Operating Purposes

Company Uses Watt-Hour Meters to Determine Power Consumed for Each Purpose at All Collieries—Haulage Is Largest Item—Breaker and Compressed-Air Machinery Where Installed, Are Leading Current Consumers

BY G. M. KENNEDY*
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AS HAS often been stated, it is rather difficult to take the total steam-power cost and distribute it with any degree of accuracy among the various engines in the plant, whereas by means of the watt-hour meter an accurate record can be kept of the electrical power consumed by each motor or group of motors.

Realizing some years ago that many advantages were to be obtained by the use of watt-hour meters one of the engineers of a large anthracite company decided to order them as part of the electric equipment to be installed at the several mines. In consequence all the electrical installations of the company are well equipped with watt-hour meters. It must not be assumed from this that each unit of electrical apparatus was purchased with a watt-hour meter as if it were an integral part of the unit, but the various groups of electrical equipment, as will be defined later, were supplied with this integrating device. The cost of a watt-hour meter is insignificant as compared with the cost of the equipment with which it is to be used, and its purchase is, therefore, entirely justifiable.

The method of grouping the apparatus for power measurement is quite flexible and depends much on the method of accounting adopted as well as on the individual opinion of the person in charge of the equipment.

However, one satisfactory method for dividing the

power consumed into groups, and it is that which has been introduced at the twelve plants described in this article, is as follows:

- | | |
|--------------------------------|-----------------------|
| (1) Transportation, or Haulage | (5) Lighting |
| (2) Breaker Machinery | (6) Hoisting |
| (3) Ventilation | (7) Compressed-Air |
| (4) Drainage | (8) Charging Stations |

The order in which they are arranged is immaterial.

For the past twelve years records have been kept of the tons prepared per month, here marked "tonnage," and the kilowatt-hours consumed per month arranged according to the headings given above. These records cover ten collieries designated in the following tabulations as A, B, C, D, E, F, G, H, J and K, also two washeries as L and M. The tabulations are taken from an average month in the year just past.

Item I shows the power used in the haulage of ten collieries and, of course, all hauling done during the month is recorded, including all work on which the electrical locomotives were used. The variations in the kilowatt-hours consumed per ton at the various collieries is accounted for in the differences in the gradients, in the lengths of haul, in the yields per car, etc.

Item II shows the power used in the preparation of the coal and includes the power consumed at night time, on Sundays and holidays in making repairs to machinery. The washery designated as M in this table shows a high number of kilowatt-hours per ton because much

CONSUMPTION OF POWER AT TEN COLLIERIES AND TWO WASHERIES DISTRIBUTED BY EIGHT PURPOSES FOR WHICH IT IS USED

Item I—Haulage				Item IV—Drainage				Item VII—Compressed Air			
Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton	Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton	Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton
A	51,232.15	174,100	3.3982	B	39,600.01	25,100	0.6338	B	39,600.01	37,100	0.9370
B	39,600.01	60,040	1.5161	C	17,050.02	25,100	1.4715	C	17,050.02	37,100	2.1759
C	17,050.02	58,900	3.4546	D	20,456.12	9,200	0.4497	G	35,301.16	103,700	2.9375
D	20,456.12	68,000	3.3241	E	24,689.12	38,170	1.0812				
E	24,689.12	41,020	1.6614	G	35,301.16	123,100	3.1722		91,951.19	177,900	1.9347
F	36,475.05	62,780	1.7211	J	38,805.00						
G	35,301.16	77,300	2.1897		151,213.11	220,670	1.4593				
H	31,851.11	49,190	1.5443								
J	38,805.00	61,700	1.5900								
K	6,424.13	11,990	1.8679								
	301,887.07	665,020	2.2022								
Item II—Breaker Machinery				Item V—Lighting				Item VIII—Charging Stations			
Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton	Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton	Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton
A	51,232.15	133,000	2.5960	A	51,232.15	4,600	0.0897	C	17,050.02	800	0.0469
B	39,600.01	14,000	0.8211	B	39,600.01	4,000	0.1010	D	20,456.12	700	0.0341
C	17,050.02	35,000	1.4533	D	20,456.12	8,550	0.4179	E	24,689.12	1,170	0.0473
D	20,456.12	143,300	6.9911	E	24,689.12	1,350	0.0546	G	35,301.16	800	0.0226
F	36,475.05	29,140	0.8254	F	36,475.05	6,520	0.1789	H	31,851.11	800	0.0251
G	35,301.16	29,100	0.7743	G	35,301.16	4,500	0.1274	J	38,805.00	800	0.0206
J	38,805.00			H	31,851.11	7,930	0.2489		168,154.13	5,070	0.0301
	190,378.01	383,540	2.01	J	38,805.00	4,200	0.1082				
				L	24,082.16	7,000	0.3197				
					300,495.08	49,350	0.1645				
Item III—Ventilation				Item VI—Hoists				Item IX—Totals			
Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton	Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton	Colliery	Tonnage	Kw.-Hr.	Kw.-Hr. Per Ton
B	39,600.01	78,645	1.9859	C	17,050.02	37,000	2.1700	A	51,232.15	311,700	6.0339
C	17,050.02	57,395	3.3662	G	35,301.16	49,300	1.3965	B	39,600.01	204,885	5.1738
G	35,301.16	63,360	1.7948	J	38,805.00	2,100	0.0541	C	17,050.02	216,295	12.6251
J	38,805.00	36,840	0.9493					D	20,456.12	99,750	5.8469
K	6,424.13	11,190	1.7418					E	24,689.12	43,540	1.7633
F	36,475.05	6,900	0.1891					F	36,475.05	76,200	2.0889
	173,656.17	254,330	1.4645					G	35,301.16	366,270	10.3751
								H	31,851.11	57,920	1.8183
								J	38,805.00	257,840	6.6687
								M	20,499.02	143,300	6.9911
								L	24,082.16	42,700	1.7730
								K	6,424.13	23,180	3.6097
									346,469.05	1,843,580	5.2056

*Electrical engineer, Lehigh Coal & Navigation Co.

pumping is necessary and many long conveyor lines have to be operated under the conditions prevailing at that particular plant.

Item III shows the power used in mine ventilation. This item varies considerably owing to the variation from mine to mine in the number and lengths of the gangways, tunnels, breasts, etc., which need ventilation.

Item IV shows the power used in removing the water from the mines. The mines designated as A have a drainage tunnel and therefore need no pumping. B, C, D, G and J are the only mines equipped with electrically operated pumps and consequently all the others fail to appear in this table.

Item V shows the power used in lighting the outside buildings around the mines. This also is not a constant quantity per ton mined, for it depends on the number and size of the buildings lighted.

Item VI shows the power used in hoisting and lowering the men and material to the surface and includes all the hoisting of men, timber, rails, supplies in general, rock, etc., whether done at one or more shafts.

Item VII shows the power used in compressing air, which is conducted by pipes into the mines and used for drilling coal and rock.

Item VIII shows the power consumed in stations for charging the small portable storage batteries used by the underground employees for their electric cap lamps.

METERS REVEAL WASTEFUL NIGHT CONSUMPTION

Item IX is a summary of the other tables. These tabulations are only for a month, their value largely consisting in comparing costs from month to month at the same mine. After making such a comparison it is easy to find out where power is being wasted and to bring about a saving. Watt-hour meters also make it possible to separate the power used at night from that used during the day, and as a result in many cases the waste of power during the night can be eliminated.

The saving in power made possible by using watt-hour meters pays liberally for the installation of the meter and its upkeep, for it tells the operator just where power is being used, and when it is excessive steps are invariably taken to reduce it to a minimum.

The kilowatt-hours per ton based on the whole production and power used is shown in Table IX as 5.2056. Since this method of tabulation was introduced the figure has been growing steadily less and less and has not reached its minimum yet.

EXPERIMENTS ON THE EFFECTS of breathing carbon dioxide have been conducted at the Pittsburgh (Pa.) station of the U. S. Bureau of Mines under the direction of Dr. R. R. Sayers, chief surgeon of the bureau, and A. C. Fieldner, supervising chemist. About 2 per cent of carbon dioxide in oxygen produced a slight increase in lung ventilation, but no subjective symptoms; 5 per cent in oxygen caused an increase in lung ventilation of about 100 per cent, but no other signs or symptoms; 7.2 per cent produced about 200 per cent increase in lung ventilation, and moderate perspiration and a slight fullness in the head were experienced after breathing the mixture for 10 minutes; 9 to 10 per cent produced about 300 per cent increase in lung ventilation, and the subject complained of frontal headache and was dizzy and perspiring at the end of 10 minutes. About 9 per cent of carbon dioxide in oxygen was breathed by some of the subjects for as long as 45 minutes, but the breathing was very laborious, and dizziness, headache and perspiration were marked. In fact, to have done any work while breathing this mixture would have been extremely difficult.

Blows or Sucks Dust from Electric Motors, Preventing Short-Circuits

MANY mining plants have no compressed air with which to remove the dust from motors and generators and in other cases there are substations where compressed air is not available. Consequently need is felt for equipment in portable form that will blow away the dust that collects on the various parts of electrical machinery and switches. The Premier Handy, manufactured by the Electric Vacuum Cleaner Co., Inc., of Cleveland, Ohio, is such an appliance. It has the further advantage that it can be used as a vacuum cleaner when that is desired.

The illustration shows how the apparatus is used to draw dust from the generator or motor. By detaching the dust bag and the hose and by attaching the latter to the orifice from which the bag has been removed, the vacuum cleaner is changed into a cleaner operating by compressed air. The machine as designed for mine service has an air-cooled motor and weighs 6 lb. The motor is universal and will operate on either alternating or direct current. The mouth of the cleaning tool is made of soft rubber that cannot mar or scratch anything and will not be broken if struck by a moving object.

In many cases where compressed air is readily available it does not pay to pipe it to every motor. The vacuum cleaner can readily be attached to an electric lamp socket and in this way will be made available without wiring, piping or preliminary expense. Then too, when using it as a blower, dry air is furnished. The air from compressors often is wet and the moisture not only rusts the machinery but short-circuits it.

Taking Dust from Commutator

By using an electric motor it is unnecessary to pipe compressed air to machines for dusting purposes. Furthermore the dust is not blown off, to settle elsewhere, but can be sucked into a bag.



By Washing Only a Part of the Coal Mined, Lowest Ash and Sulphur and Largest Yield Are Attained*

Standardized Screening Methods Make Comparisons Possible—How Coal Was Screened in Practice—Only Coal Passing Over Four-Mesh Screen Will Be Washed—Finer Coal Will Be Added to It Untreated

BY G. R. DELAMATER
Harrisburg, Pa.

THE washery at which the tests described in this article were made was originally intended to deal with the coal coming entirely from certain mines in Pennsylvania all operating in the same bed. At that time 92 per cent of the coal fed to the washery appeared in the cleaned product, and the ash content in the refuse was always above 50 per cent. Even then a certain quantity of fine material found its way into the refuse.

During the late war, when coal was confiscated by the government and replaced by other coal from all over the states of West Virginia and Pennsylvania, we found ourselves facing a difficult problem, for there were never two consecutive days during which the coal mixture would be alike. In fact, each day's mixture usually contained coal from six to ten mines and the product of as many as 129 mines was represented in the washery feed during a single thirty-day period. To adjust the plant to such a variable feed so as to attain maximum efficiency naturally was difficult, but, all circumstances considered, it was regarded as fortunate that results as good as those attained were obtained.

Tests from which the data here presented were obtained represent a plant operation covering three months during the year 1919. Samples of the raw coal, washed coal and refuse were carefully taken daily, and screen tests made of each, the data herein given representing the composite results of this work.

TEST SCREEN GIVES COAL STANDARD TREATMENT

In making these screen tests it was desirable that great accuracy be obtained, and, realizing that in order to be comparative such tests should be conducted as nearly as possible under identical conditions, it was decided to use a Ro-Tap shaker screen set manufactured by the W. S. Taylor Co., of Cleveland, Ohio. Fig. 1 shows this apparatus, which is one in which the sieve pans at all times are given identically the same rotary movement, the same number of revolutions and taps per minute and, by means of an automatic clock-controlled electric switch, each test is carried on for exactly the same length of time.

As will be noted from the charts and tables, eighteen screens were used and they ranged from 1.05-in. clear opening down to 200 mesh. After studying the various screens used for work of this nature it was decided to adopt the Tyler standard screen set, which has as its base a 200-mesh sieve made from 0.0021-in. wire having a clear opening of 0.0029 in., which is that adopted as standard by the U. S. Bureau of Standards. The 100-mesh and the 20-mesh sieves in this screen scale also meet the specifications adopted by that bureau, so three of the sieves are in accord with its standards.

*Second of two articles by G. R. Delamater. The first appeared in *Coal Age* Oct. 26 and was entitled "Problems of Bituminous Coal Washing and Measures Now Being Taken for Their Solution."

The ratio between the different sizes of this screen scale has been taken as 1.414, or the square root of 2, as recommended by Rittinger. Thus the width of opening in each successive sieve is exactly 1.414 times that of the preceding sieve, making the area of opening in each successive sieve just double that of its predecessor. When desirable, every other sieve may be skipped or taken out. This results in half the screens being used, but the ratio of width of opening will be 2 to 1.

By skipping two sizes a ratio of 3 to 1 will result and by skipping three sizes a ratio of 4 to 1 will be obtained. At the time these tests were started it was my belief that the results probably would show that nothing coarser than 16-mesh coal could be bypassed around the washery except possibly in the low-sulphur coals such as those of the Rocky Mountain district, where high ash is the only undesirable feature and in which it was probable that 8-mesh would be the limiting size. I was, therefore, much surprised in finding plus 8-mesh to be the permissible size and that a screen with about $\frac{3}{4}$ in. of clear opening could be used in actual plant operation.

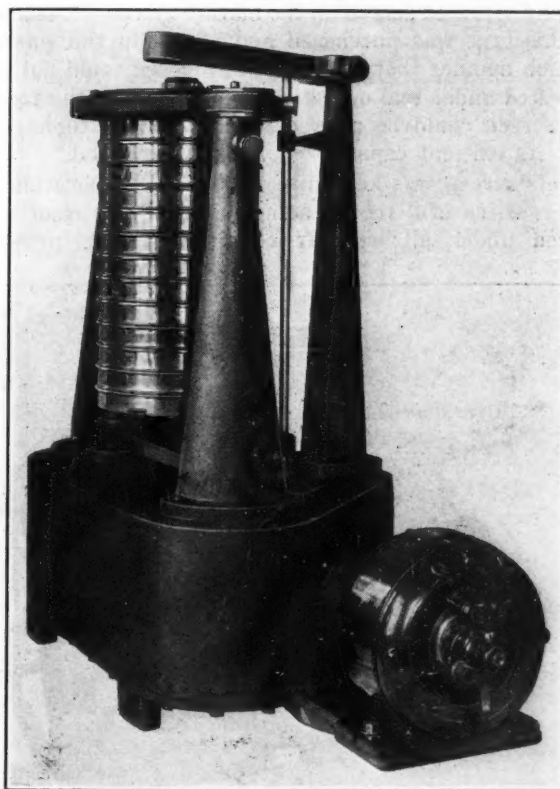


FIG. 1—A SHAKER SCREEN MAKING THIRTEEN SIZES

Apparatus gives uniform movement, equal revolutions and taps per minute, equal time control and therefore comparable results. In the tests described in this article seventeen real screens and one pan or blind screen were used. A time switch shuts off the current when the appointed duration of the test is completed.

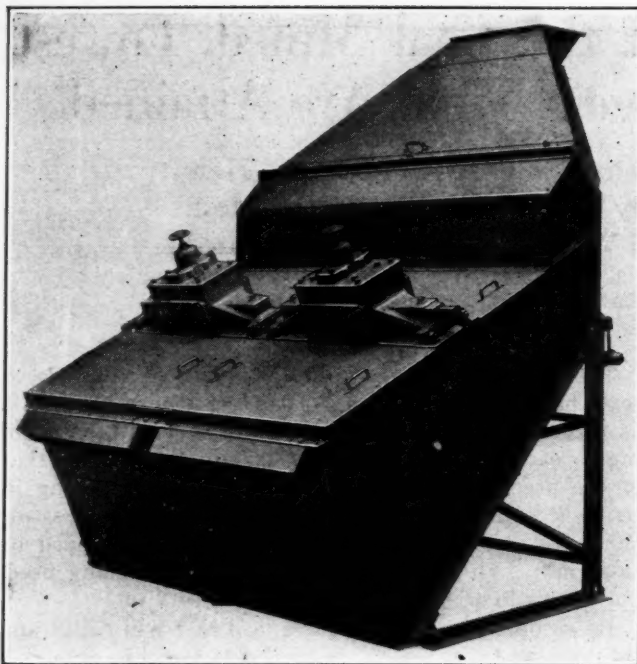


FIG. 2—OUTSIDE VIEW OF SCREEN FOR WASHER USE

Note how carefully the screen is housed in so as to prevent the escape of fine dust. The vibrating mechanism is on top, free from contact with the material being screened. It is enclosed in a metal dustproof housing.

In addition to this I realized that the cost of screening out such coal in the tonnages it would be necessary to handle would be a serious matter, as no screening equipment then known seemed well adapted to such service. Fortunately, about the time this work was completed the W. S. Tyler Co. placed the Hum-mer electrically vibrated screen on the market and a 6-ft. machine of this type was purchased and placed in the washery in such manner that the method proposed could not only be tested under real operating conditions but the feed to the screen could be altered to any desired tonnage so that its efficient capacity could be determined.

This screen was kept in constant daily operation for one year, careful record being made of the results obtained under all weather conditions. The principal

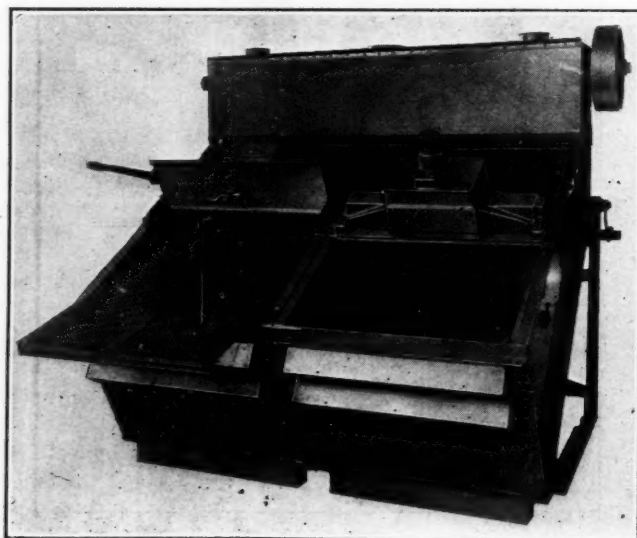


FIG. 3—LIFTING OUT A SCREEN FOR REPLACEMENT

On the frame as seen on the right-hand side is a small shaft to which a wrench can be attached. By turning this shaft the inclination of the screen can be adjusted to suit the moisture content of the feed. One man can readily provide that adjustment.

effect of these was to modify the moisture content of the coal. It should be noted that the data represented a full year's test and so enabled us to study all the many coal mixtures which were delivered to the washery. The result of this one year's demonstration was so gratifying that the entire plant was finally equipped with screens of this type, not, however, without careful consideration of all the other available screening equipment.

It was found that this machine, which had a total screen area of 30 sq.ft., would efficiently handle from 80 to 110 tons of coal per hour, depending, of course, upon the moisture content, the maximum of which slightly exceeded 10 per cent. The power consumption was 1 hp. The screen cloth was such as to give the equivalent of a $\frac{1}{8}$ -in. clear square opening.

Figs. 2 and 3 show the type of screen used. Simplicity, accessibility, high capacity, low power consumption and ability to operate without lubrication are its chief advantages.

The vibrator is a simple solenoid magnet operating on a 15-cycle alternating current. A small motor-gen-

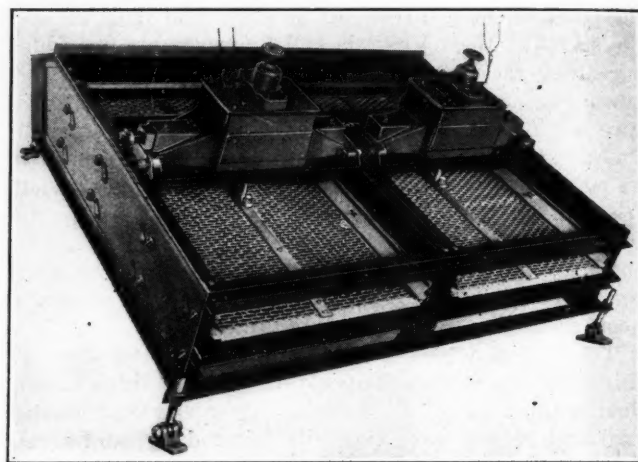


FIG. 4—SCREEN WITH DUSTPROOF HOUSING OMITTED

The screens are vibrated by the electric vibrators on the bridge above them. The handwheel regulates the intensity. Fifteen-cycle current is used. The vibration is not subdued by the presence of a heavy load. There is no make and break; the alternations of the current pull up and release the armature at high speed.

erator set converts the available power (which in our case was 25-cycle) to that required by the machine. All the screens used in this plant combined required 4 hp. of electric energy.

No movement whatever is imparted to the frame of this machine, only the screen cloth being moved and this at the rate of 1,800 vibrations per minute. This cloth is normally stretched up at drum-head tension yet is quickly adjustable. Also by means of the small hand wheel on the top of the vibrator the strength of vibration may be instantly adjusted while the screen is in operation.

Though the rapid vibration of the cloth would alone result in effective screening, another feature of this machine undoubtedly has much to do with its high capacity. In hand screening simply shaking the sieve pans is a slow process. Anyone who has performed this work well knows the result of shaking the sieves over a table where they may be frequently bumped meanwhile. The result is much greater rapidity of screening. The armature of the machine here illustrated at each upward stroke strikes suitably arranged blocks, thus imparting to the screen cloth an effective impact.

Prior to the installation of these screens, when all the

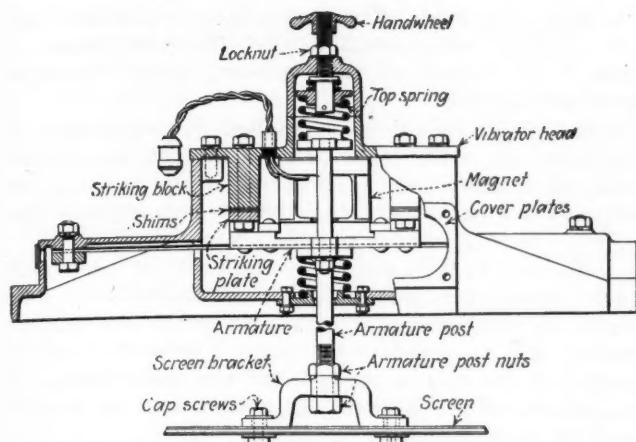


FIG. 5—ELECTRIC VIBRATOR WITH SCREEN ATTACHED

The strength of the vibration is regulated by the handwheel. The low-frequency current is generated by a small alternator operated by a high-frequency circuit. The piece across the poles of the magnet—"the armature," as it is termed—goes back and forth as the strength of the magnet increases or declines.

coal was washed, twelve jigs, three settling tanks with Luhrig dewatering elevators and three Elmore centrifugal coal driers were employed. The washed coal yield ranged from 86.12 per cent to 89 per cent when good grades of coal constituted the mixture. The moisture content of the finished washed-coal product was 8 per cent whereas the ash and sulphur contents were 6.73 per cent and 1.15 per cent respectively. The washery operation was such at all times as to maintain these figures with but slight variation.

After installation of the screens only six jigs, one settling tank with dewatering elevator and one Elmore drier were used. The ash and sulphur content of the finished product remained the same, or 6.73 and 1.15 per cent respectively, and the moisture content was reduced to 5 per cent or less. The yield ranged from 92.5 per cent to 95 per cent, there being three straight months during which the higher figure was obtained. This, of course, was because of improvement in the quality of the raw coal coming to the washery.

The accompanying charts are designated by letter and the tables by number. The tables are somewhat

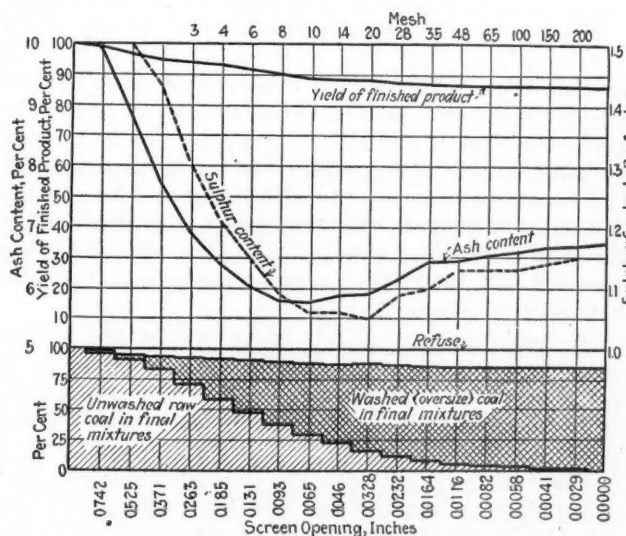


CHART A—MIXING WASHED COAL ABOVE A CERTAIN SIZE WITH UNWASHED COAL BELOW THAT SIZE

Taking coal that would go through a screen opening of 1.05 in. as basis for examination, the ash and sulphur content and yield of finished product are given that would result from washing all the coal larger than a certain size and adding to it unwashed all the coal below that size. Note how much more successful is part washing than entire, or even almost entire, washing.

lengthy but are submitted so that those desiring to make a more detailed study of this problem may have all necessary data available. The charts are, of course, a more convenient form for the same data, bringing out with greater clearness, if with less accuracy, the results obtained.

In making screen tests as well as analyses of the raw coal, washed coal and refuse, it has always been my experience that it is impossible to obtain results throughout which will check to exact figures. I mean by this that, theoretically, the ash and sulphur content of the washed coal and refuse when combined should equal the amounts of the ash and sulphur in the raw coal. The best safeguard against unreasonable variations from the theoretically correct figures is to take large samples with great care. This procedure was followed in this work.

The raw coal was—rightly, I think—taken as the base of all calculations in making corrections, and for this

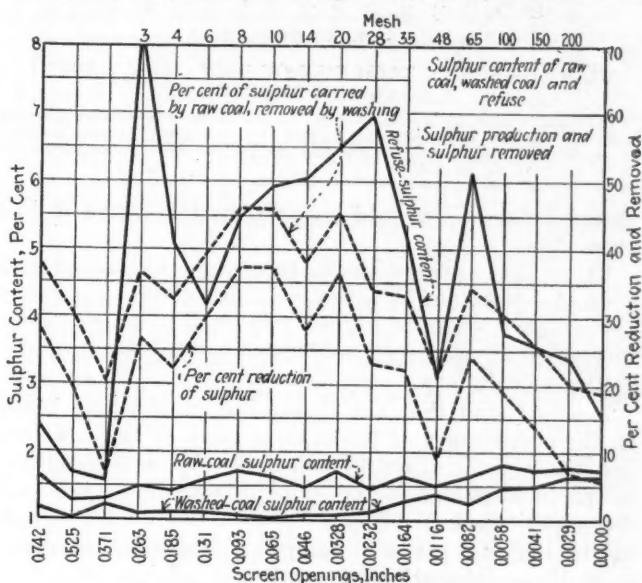


CHART B—SULPHUR IN EACH SIZE OF RAW COAL, WASHED COAL AND REFUSE

Note that this chart gives the sulphur in each size; not the sulphur in all sizes above the size given or in all sizes below that size but merely sulphur in the coal which passes through the next larger screen and is held on the screen of which the opening is given.

reason the tonnage of this raw coal and its ash and sulphur contents are charged against the washery and must be accounted for. Likewise, the washed coal is the resulting plant product which is invariably carefully sampled and weighed, and the samples analyzed. It was, therefore, considered in this work that the figures resulting from the screen tests and analyses of the washed coal must be accepted at their face value and be left uncorrected.

SOME COAL ALWAYS IS BROKEN

Because some of the coal is sure to be broken as it passes through the washery the percentages of sizes in the washed coal and refuse when combined cannot be expected to equal exactly the percentages of the same sizes in the raw material. For an entirely different reason the ash and sulphur content as determined in an analysis of the washed coal may rightfully be accepted as binding and not subject to correction as are those of the refuse, for whatever is not found in the refuse that calculations of the content of the washed coal would show should be there is nevertheless properly chargeable to the refuse or waste product of the plant. It is

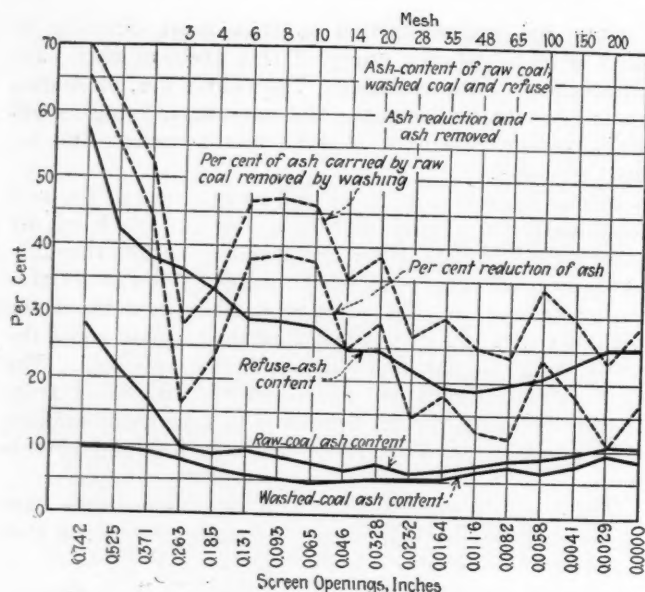


CHART C—ASH IN EACH SIZE OF RAW COAL, WASHED COAL AND REFUSE

This chart also is based on the coal held by the screen that is recorded as an abscissa and passed by the next larger screen. It shows the degree to which the particular size recorded fails to be purified of its ash.

absent from the washed coal no matter where it has gone.

Under that assumption the percentage of washed coal yield as determined by actual weighing at the coke ovens (all weights being, of course, converted to a dry basis) was accepted as correct and used as the base for corrective calculations.

It was found that the theoretical calculations based on the percentages of the various sizes of the raw coal and their percentages of ash and sulphur content resulted in a total ash and sulphur content of the raw coal which checked closely with the actual analysis made of the original raw-coal samples. The total resulting from these calculations for ash and sulphur therefore was accepted as the correct figure in order that these figures might be used for the corrective calculations to follow.

Analyses for the ash and sulphur content of the various sizes in the washed coal also were accepted as correct. Using the washed-coal yield as a base, the correct figures for the percentage of each size in the washed

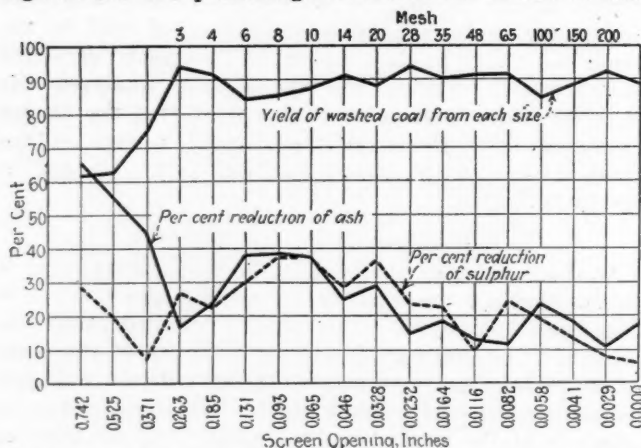


CHART D—PERCENTAGE REDUCTIONS OF SULPHUR AND ASH WITH YIELD ON EACH SIZE

The low reductions on the extremely fine sizes show how little is being accomplished by the washery in reducing the ash and sulphur in these dusts and near dusts. The quantity of fines is small and the degree to which they can be bettered is also small, so it is found better not to wash them.

coal were calculated. Then, using the raw-coal data and the corrected washed-coal figures, the percentages of sizes in the refuse and their ash and sulphur contents were calculated.

This method, of course, resulted in corrections to nearly all the percentages of sizes in both the washed coal and refuse as well as to some of the analyses for ash and sulphur content of the various sizes in the refuse. However, none of these was radical.

Referring now to the diagrams, chart A sets forth quite clearly the unexpected result disclosed by this work. It was found that both a lower ash and sulphur content will be found in the finished product if only a portion of the coal be washed, the remainder being bypassed around the washery and mixed with the washed product from the other portion.

On this chart each vertical line represents an individual scheme of washing, being entirely independent of each of the others set forth by the other lines. This chart arrangement will hereafter be called class X,

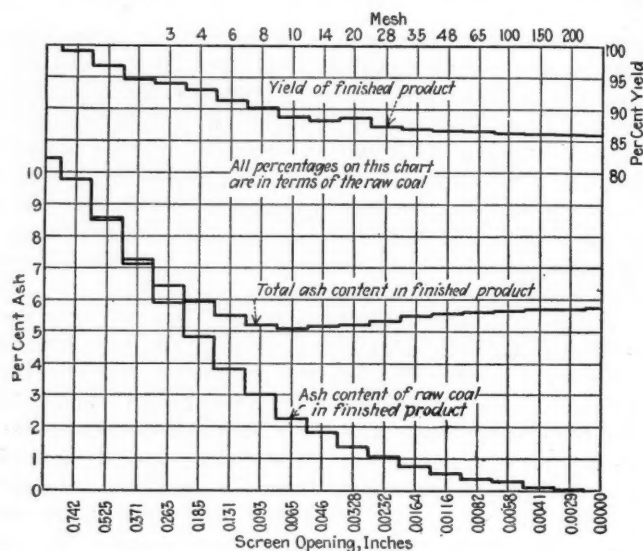


CHART E—ASH CONTENT WHEN ANY ONE SCREEN IS USED TO SELECT COAL FOR WASHING FROM REST OF COAL

Chart shows percentage of the ash in the raw coal appearing in the finished product, the total ash content and the yield of that product.

whereas those wherein each vertical line represents an individual screen size will be called class Y. For example, the fourth line from the left on chart A represents the 3-mesh screen with 0.263 sq.in. clear opening. The curves intersecting this line designate the percentages in each instance that will result if all the coal retained on that screen be washed and the washed product resulting be mixed with the unwashed raw coal passing through this screen.

The lower portion of this chart depicts the proportions of raw and washed coal in the final mixture. It will be noted that the yield curve for the finished product declines steadily as the percentage of coal washed is increased.

It will be seen that with the 20-mesh screen the lowest sulphur percentage was obtained whereas it was with the 10-mesh screen that the percentage of ash in the product reached its minimum. The 14-mesh would therefore be the ideal size for the screen if a balance were struck between maximum ash and sulphur reductions. However, in our instance (and I think the same will apply to most of the washeries where the coal is

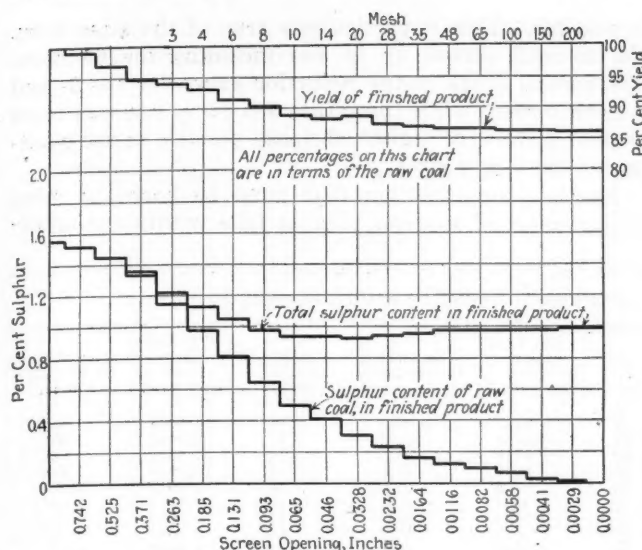


CHART F—SULPHUR CONTENT WHEN ANY ONE SCREEN IS USED TO SELECT COAL FOR WASHING FROM REST OF COAL

Each ordinate shows the result that would be obtained if all the coal that would be held on such a screen were washed and all the coal that would be passed by that screen were mixed with the former to form the final product.

cleaned for the manufacture of metallurgical coke) the washery received no premium for producing a coal product having a sulphur content such as would result in the manufacture of a coke of less than, say, 0.95 per cent sulphur. One per cent of sulphur in the coke was the maximum allowable at this plant, the blast-furnace department claiming no advantages for any lesser content, yet making strenuous objection to anything higher. As a washed coal that contained 1.25 per cent of sulphur gave a coke with a flat 1 per cent of that injurious ele-

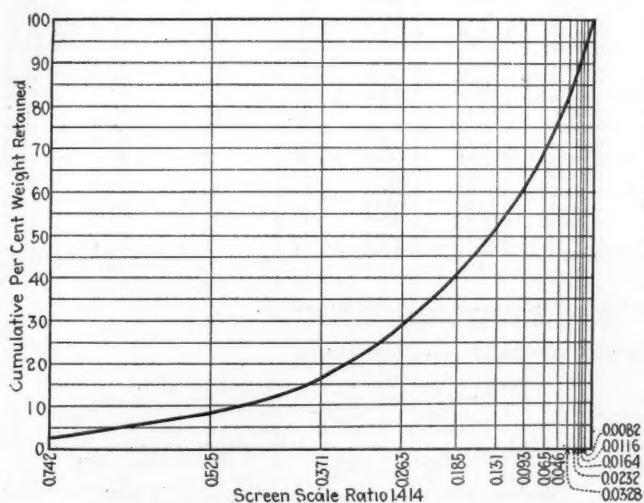


CHART G—RAW COAL RETAINED ON SCREENS

This is a cumulative diagram, the quantities plotted on the ordinates (which represent the screen openings) being those of all the coal that would refuse to pass through that particular screen opening. Consequently the quantities gradually increase until with the blind screen at the end 100 per cent is reached.

ment, it was always our custom to operate the washery so that the sulphur content of the washed coal would remain as constant as possible at 1.15 per cent. This assured us of always maintaining a reasonable margin of safety.

For this reason no advantage would accrue from using the 14-mesh screen, which would result in a washed-coal yield of 88.42 per cent. Instead we adopted the 6-mesh screen having a clear opening of 0.131 in. This

resulted in a washed-coal yield of 91.5 per cent with a sulphur content of 1.15 per cent. After making a complete screen installation at this plant, because of some improvement in the quality of the raw coal and of a feeling that we could operate with reasonable safety when aiming at a finished product containing 1.20 per cent of sulphur the 4-mesh screen with 0.185 in. clear opening was adopted. This resulted in a normal washed-coal yield of 93.13 per cent, but, as previously stated, at times a yield of 95 per cent was actually obtained.

In explanation of this rather unexpected result atten-

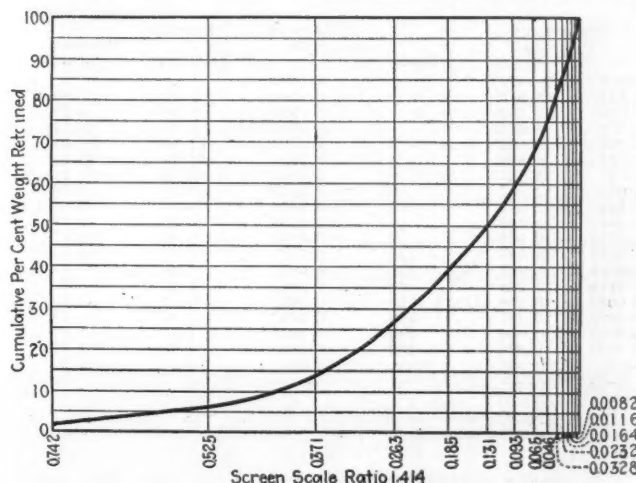


CHART H—WASHED COAL RETAINED ON SCREENS

This is also a cumulative diagram and shows at each point in the curve what any one screen would do if it were the only screen by which the coal was sized. That is, the ordinates represent the entire oversize of that particular screen, beginning, however, with coal that passes a 1.05 opening, that being the size of coal exclusively considered in all these tests.

tion is called to the other illustrations. In Charts B and C (class Y) the raw and washed coal, ash and sulphur curves show quite clearly the sizes in which the maximum reductions may be accomplished as well as the sizes that are but little affected by washing. Chart D (class Y) is of interest in that reduction and yield curves travel exactly opposite one another although the general trend of the reduction curve is more rapidly downward than is the yield curve upward. The breaks, however, in each are quite uniform.

Charts E and F (class X) are of interest in that they

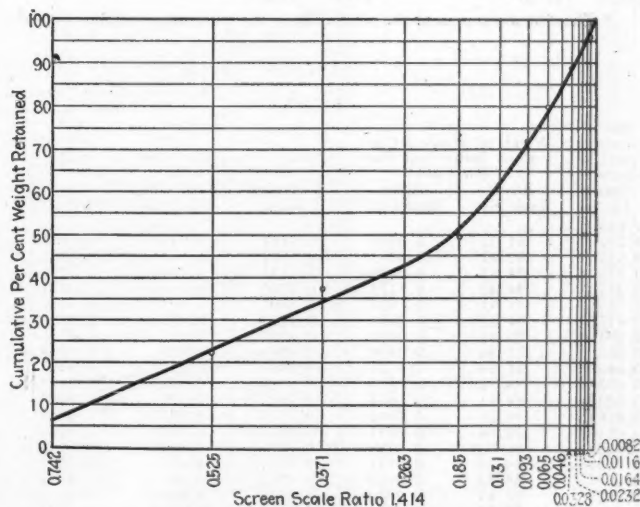


CHART I—REFUSE RETAINED ON SCREENS

Also a cumulative diagram like charts G and H. As in them also the screen sizes are not plotted at even distances but on a logarithmic scale, the lines being drawn at distances proportional to the screen opening.

go further than the others in showing the cause of the phenomena presented herein. The percentages all being in terms of the raw coal disclose the relation between the total ash and sulphur content of the finished product and the yield.

Referring to chart C (class Y), the ash curve for refuse indicates clearly the presence of free coal in this material in the sizes wherein but slight ash reduction

is possible. This is particularly true of the sizes from the 20-mesh screen up to and including the 65-mesh. The radical break in the reduction curve for the 3- and 4-mesh screens while the refuse ash curve remains more regular proves the higher efficiency possible in the washing of the larger sizes.

Another consideration that must be borne in mind is that most of the coal treated falls within the larger

TABLE I—PERCENTAGES OF VARIOUS SIZES AND ASH AND SULPHUR CONTENT IN EACH SIZE—FOR RAW COAL

Retained on Openings In.	Mm.	Mesh	Diameter Wire, In.	Percentage of Each Size	Cumulation of Preceding Column*	Ash Content— Per Cent			Sulphur Content— Per Cent		
						As of Each Size	As of Total Raw Coal	Cumulation Of Preceding Column*	As of Each Size	As of Total Raw Coal	Cumulation Of Preceding Column*
1.050	26.670	.....	0.1490	.....	.....	28.40	0.0068	0.0068	1.66	0.0004	0.0004
0.742	18.850	.....	0.1350	2.40	2.40	21.90	0.0127	0.0195	1.28	0.0007	0.0011
0.525	13.330	.....	0.1050	5.80	8.20	16.60	0.0138	0.0333	1.32	0.0011	0.0022
0.371	9.423	.....	0.0920	8.32	16.52	9.71	0.0121	0.0454	1.50	0.0019	0.0041
0.263	6.680	.....	0.0700	12.43	28.95	9.00	0.0108	0.0562	1.44	0.0017	0.0058
0.185	4.699	.....	0.0650	11.94	40.89	9.62	0.0099	0.0661	1.60	0.0017	0.0075
0.131	3.327	.....	0.0360	10.34	51.23	8.86	0.0085	0.0746	1.72	0.0016	0.0091
0.093	2.362	.....	0.0320	9.55	60.78	7.88	0.0072	0.0818	1.66	0.0015	0.0106
0.065	1.651	.....	0.0350	9.16	69.94	7.79	0.0047	0.0907	1.50	0.0009	0.0115
0.046	1.168	.....	0.0250	6.23	76.17	6.50	0.0031	0.0938	1.47	0.0007	0.0132
0.0328	0.833	.....	0.0172	6.00	82.17	7.00	0.0030	0.0968	1.66	0.0007	0.0139
0.0232	0.589	.....	0.0125	4.72	86.89	7.82	0.0020	0.0988	1.54	0.0004	0.0143
0.0164	0.417	.....	0.0122	4.26	91.15	8.59	0.0014	0.1002	1.66	0.0003	0.0146
0.0116	0.295	.....	0.0092	2.56	93.71	8.91	0.0013	0.1015	1.84	0.0003	0.0149
0.0082	0.208	.....	0.0072	1.59	95.30	9.60	0.0021	0.1036	1.75	0.0004	0.0153
0.0058	0.147	.....	0.0042	1.43	96.73	10.71	0.0003	0.1039	1.79	0.0001	0.0154
0.0041	0.104	.....	0.0026	2.16	98.89	10.60	0.0009	0.1048	1.75	0.0002	0.0156
0.0029	0.074	.....	0.0021	0.28	99.17						
Solid	Solid	Solid	0.0021	0.83	100.00						
Totals				100.00		10.48	0.1048		1.56	0.0156	

* A totalization of the percentages of all sizes which are retained on this and all screens of larger opening. The figure, therefore, represents the percentage of coal which the particular screen would retain if all the coal screened were presented to it.

TABLE II—PERCENTAGE OF VARIOUS SIZES AND ASH AND SULPHUR CONTENT IN EACH SIZE—FOR WASHED COAL

Retained on Openings, In.	Per cent- age of Each Size	Cumulation of Preceding Column	Ash Content— Per Cent			Preceding Column Converted to Per Cent of Raw Coal	Sulphur Content— Per Cent			Preceding Column Converted to Per Cent of Raw Coal	Reduction Per Cent		Removed* Per Cent	
			As of Each Size	As of Total Washed Coal	Cumulation of Preceding Column		As of Each Size	As of Total Washed Coal	Cumulation of Preceding Column		Ash	Sulphur	Ash	Sulphur
1.050	.....	.....	9.80	0.0017	0.0017	0.0000	1.19	0.0002	0.0002	0.0000	65.5	28.3	70.3	38.0
0.742	1.71	1.71	9.85	0.0042	0.0059	0.0003	1.03	0.0004	0.0006	0.0000	55.0	19.5	61.3	30.5
0.525	4.24	5.95	9.22	0.0066	0.0125	0.0014	1.23	0.0009	0.0015	0.0002	44.5	6.8	52.2	20.5
0.371	7.20	13.15	8.12	0.0111	0.0236	0.0054	1.10	0.0015	0.0030	0.0007	16.4	26.7	28.0	36.7
0.263	13.62	26.77	6.87	0.0088	0.0324	0.0110	1.12	0.0014	0.0044	0.0015	23.7	32.0	34.2	32.6
0.185	12.74	39.51	5.95	0.0060	0.0384	0.0164	1.12	0.0011	0.0055	0.0024	38.1	30.0	46.8	39.4
0.131	10.11	49.62	5.42	0.0051	0.0435	0.0221	1.08	0.0010	0.0065	0.0033	37.7	37.3	46.3	45.8
0.093	9.47	59.09	4.91	0.0046	0.0481	0.0283	1.08	0.0010	0.0075	0.0044	37.7	37.3	46.3	45.8
0.065	9.29	68.38	5.10	0.0034	0.0515	0.0333	1.08	0.0007	0.0082	0.0053	24.7	28.0	35.2	38.0
0.046	6.62	75.00	5.34	0.0034	0.0549	0.0384	1.09	0.0007	0.0089	0.0062	28.9	36.6	38.8	45.3
0.0328	6.15	81.15	5.33	0.0028	0.0577	0.0429	1.13	0.0006	0.0095	0.0071	14.9	23.1	26.8	34.0
0.0232	5.15	86.30	5.72	0.0026	0.0603	0.0472	1.29	0.0006	0.0101	0.0079	18.3	22.3	29.6	33.2
0.0164	4.48	90.78	6.80	0.0019	0.0622	0.0501	1.40	0.0004	0.0105	0.0085	13.0	9.2	25.1	21.4
0.0116	2.73	93.51	7.58	0.0013	0.0635	0.0521	1.26	0.0002	0.0107	0.0088	11.8	24.1	24.0	34.3
0.0082	1.70	95.21	6.80	0.0010	0.0645	0.0537	1.49	0.0002	0.0109	0.0091	23.7	19.0	34.2	30.4
0.0058	1.41	96.62	7.84	0.0017	0.0662	0.0564	1.51	0.0003	0.0112	0.0095	18.3	13.7	29.7	25.7
0.0041	2.22	98.84	9.56	0.0003	0.0665	0.0568	1.66	0.0002	0.0114	0.0097	10.7	7.3	23.2	20.1
0.0029	0.30	99.14	8.78	0.0008	0.0673	0.0580	1.65	0.0001	0.0115	0.0099	17.2	5.7	28.7	18.9
Solid	0.86	100.00												
Totals	100.00		6.73	0.0673			1.15	0.0115			35.8	26.3	44.7	36.5

* These figures represent the percentage of the total ash or sulphur carried by the raw coal which has been removed by washing.

TABLE III—DATA FOR THE DETERMINATION OF FINAL COAL MIXTURES

Retained on Openings, In.	Yield of Washed Coal Each Individual Size Per Cent		Cumulation of Preceding Column	Percentages of, (In Terms of Raw Coal)		Resulting Coal Mixture (In Terms of Raw Coal)		Yield of Finished Product		Final Product Resulting From Mixing Through Size for Each of Screen Sizes Shown,* Per Cent		Sulphur Content	
	As of Each Size	As of Raw Coal		Raw Coal Retained in Final Mixture	Ash Content of Raw Coal in Mixture	Sulphur Content of Raw Coal in Mixture	Ash Content in Terms of Raw Coal						
1.050	61.33	0.0147	0.0147	0.9760	0.0980	0.0152	0.9907	0.0980	0.0152	99.07	9.89	1.53	
0.742	62.87	0.0365	0.0512	0.9180	0.0853	0.0145	0.9692	0.0856	0.0145	96.92	8.83	1.50	
0.525	74.53	0.0620	0.1132	0.8348	0.0715	0.0134	0.9480	0.0729	0.0136	94.80	7.69	1.43	
0.371	94.40	0.1173	0.2305	0.7105	0.0594	0.0115	0.9410	0.0648	0.0122	94.10	6.89	1.30	
0.263	91.91	0.1097	0.3402	0.5911	0.0486	0.0098	0.9313	0.0596	0.0113	93.13	6.40	1.21	
0.185	84.22	0.0871	0.4273	0.4877	0.0387	0.0081	0.9150	0.0551	0.0105	91.50	6.02	1.15	
0.131	85.41	0.0816	0.5089	0.3922	0.0302	0.0065	0.9011	0.0523	0.0098	90.11	5.80	1.09	
0.093	87.36	0.0800	0.5889	0.3006	0.0230	0.0050	0.8895	0.0513	0.0094	88.95	5.77	1.06	
0.065	91.56	0.0570	0.6459	0.2383	0.0188	0.0041	0.8842	0.0521	0.0094	88.42	5.89	1.06	
0.046	88.32	0.0530	0.6989	0.1783	0.0141	0.0031	0.8772	0.0525	0.0093	88.72	5.92	1.05	
0.0328	94.11	0.0444	0.7433	0.1311	0.0110	0.0024	0.8744	0.0539	0.0095	87.44	6.16	1.09	
0.0232	90.64	0.0386	0.7819	0.0885	0.0080	0.0017	0.8704	0.0552	0.0096	87.04	6.45	1.10	
0.0164	91.64	0.0235	0.8054	0.0629	0.0060	0.0013	0.8683	0.0561	0.0098	86.83	6.46	1.13	
0.0116	91.87	0.0146	0.8200	0.0470	0.0046	0.0010	0.8670	0.0567	0.0098	86.70	6.54	1.13	
0.0082	84.93	0.0121	0.8321	0.0327	0.0033	0.0007	0.8648	0.0570	0.0098	86.48	6.60	1.13	
0.0058	88.54	0.0191	0.8512	0.0111	0.0012	0.0003	0.8623	0.0576	0.0098	86.23	6.68	1.14	
0.0041	92.65	0.0026	0.8538	0.0083	0.0009	0.0002	0.8621	0.0577	0.0099	86.21	6.69	1.15	
0.0029	89.00	0.0074	0.8612	0.0000	0.0000	0.0000	0.8612	0.0580	0.0099	86.12	6.73	1.15	
Solid													
Totals	86.12	0.8612											

* The figures given here for each screen size are independent of all other screen sizes, i.e., all coal which would pass over that screen is washed and the resulting washed coal is mixed with all of the raw coal which passes through that screen.

TABLE IV—PERCENTAGE OF SIZES AND ASH AND SULPHUR CONTENT IN EACH SIZE—FOR REFUSE

				Ash Content Per Cent						Sulphur Content Per Cent			Yield of Refuse, Each Individual Size		
Retained on Openings		Mesh	Diameter Wire, In.	Percent- age of Each Size	Cumula- tion of Preceding Column	As of Each Size	As of Total Refuse	Cumula- tion of Preceding Column	As of Each Size	As of Total Refuse	Cumula- tion of Preceding Column	As of Each Size	As of Raw Coal	Cumula- tion of Preceding Column	
In.	Mm.														
1.050	26.670	...	0.1490	6.70	6.70	57.90	0.0388	0.0388	2.40	0.0016	0.0016	38.67	0.0093	0.0093	
0.742	18.850	...	0.1350	15.40	22.10	42.30	0.0651	0.1039	1.70	0.0026	0.0042	37.13	0.0214	0.0307	
0.525	13.330	...	0.1050	15.20	37.30	38.20	0.0581	0.1620	1.57	0.0024	0.0066	25.47	0.0211	0.0518	
0.371	9.423	...	0.0920	5.05	42.35	36.50	0.0184	0.1804	8.21	0.0042	0.0108	5.60	0.0070	0.0588	
0.263	6.680	3	0.0700	7.21	49.56	33.20	0.0239	0.2043	5.07	0.0037	0.0145	8.09	0.0100	0.0688	
0.185	4.699	4	0.0650	11.74	61.30	29.20	0.0343	0.2386	4.18	0.0049	0.0194	15.78	0.0163	0.0851	
0.131	3.327	6	0.0360	9.94	71.24	29.00	0.0288	0.2674	5.48	0.0055	0.0249	14.59	0.0138	0.0989	
0.093	2.362	8	0.0320	8.36	79.60	28.40	0.0237	0.2911	5.93	0.0050	0.0299	12.64	0.0116	0.1105	
0.065	1.651	10	0.0250	3.82	83.42	24.88	0.0095	0.3006	6.04	0.0023	0.0322	8.44	0.0053	0.1158	
0.046	1.168	14	0.0172	5.05	88.47	24.80	0.0125	0.3131	6.51	0.0033	0.0355	11.68	0.0070	0.1228	
0.0328	0.833	20	0.0125	2.02	90.49	22.00	0.0044	0.3175	6.96	0.0014	0.0369	5.89	0.0028	0.1256	
0.0232	0.589	28	0.0122	2.88	93.37	19.40	0.0056	0.3231	5.24	0.0015	0.0384	9.36	0.0040	0.1296	
0.0164	0.417	35	0.0092	1.51	94.88	19.00	0.0029	0.3260	3.11	0.0005	0.0389	8.36	0.0021	0.1317	
0.0116	0.295	48	0.0072	0.94	95.82	20.00	0.0019	0.3279	6.15	0.0006	0.0395	8.13	0.0013	0.1330	
0.0082	0.208	65	0.0042	1.59	97.41	20.80	0.0033	0.3312	3.78	0.0006	0.0401	15.07	0.0022	0.1352	
0.0058	0.147	100	0.0026	1.80	99.21	23.20	0.0042	0.3354	3.58	0.0006	0.0407	11.46	0.0025	0.1377	
0.0041	0.104	150	0.0021	0.14	99.35	25.20	0.0004	0.3358	3.40	0.0001	0.0408	7.35	0.0002	0.1379	
0.0029	0.074	200	0.0021	0.65	100.00	25.32	0.0016	0.3374	2.55	0.0002	0.0410	11.00	0.0009	0.1388	
Solid	Solid	Solid													
Total				100.00		33.74	0.3374		4.10	0.0410		13.88	0.1388		

sizes. Thus any reduction of ash or sulphur accomplished in these sizes has a marked effect in decreasing the quantity of these substances in the total product.

Note that the last four small grades, which carry the highest sulphur of any of the sizes separated, amount to only 4.7 per cent of the total raw coal.

Safe Handling of Railroad Cars at Mines*

BRAKES on railroad cars often are in poor condition, making it necessary for the car dropper to use extreme care to keep the cars from getting out of control and being wrecked. Sometimes the brake sticks and it is necessary for the car dropper to kick it off in order to start the car. Many accidents have been caused by the car dropper leaving the brakestick in the wheel and going below to kick off the brake. Often it releases its hold suddenly and in turning throws out the brakestick, hitting the car dropper on the head. A brakestick should be made with a hook on the end to prevent it from slipping off the brake staff and also to permit its being hung on the ladder, as shown in Fig. 1. In this way the brakestick will not fall on the car dropper and will be convenient for him when he climbs up to set the brake again. There are many

*From an article in the *National Safety News*, the publication of the National Safety Council.

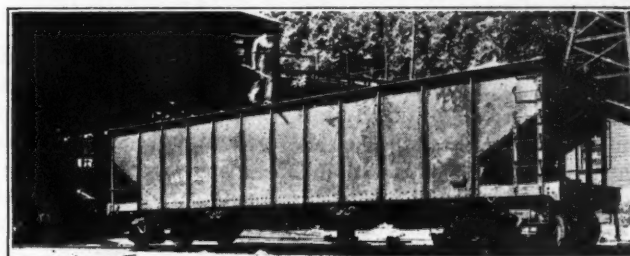


FIG. 2—EMPTY-CAR WALKING. ANOTHER UNSAFE STUNT

The trimmer who balances on the edge of a railroad car would take risk enough if he tried his acrobatics where no rails and exposed tie ends made landing hazardous and where there were no cars moving on other tracks to distract and imperil him. In the railroad yard around a tipple is no place for gymnastics.

cases on record where car droppers have been seriously injured by being hit on the head with the falling brakestick, which, made of iron, may easily knock a man senseless.

Another common source of danger is the practice

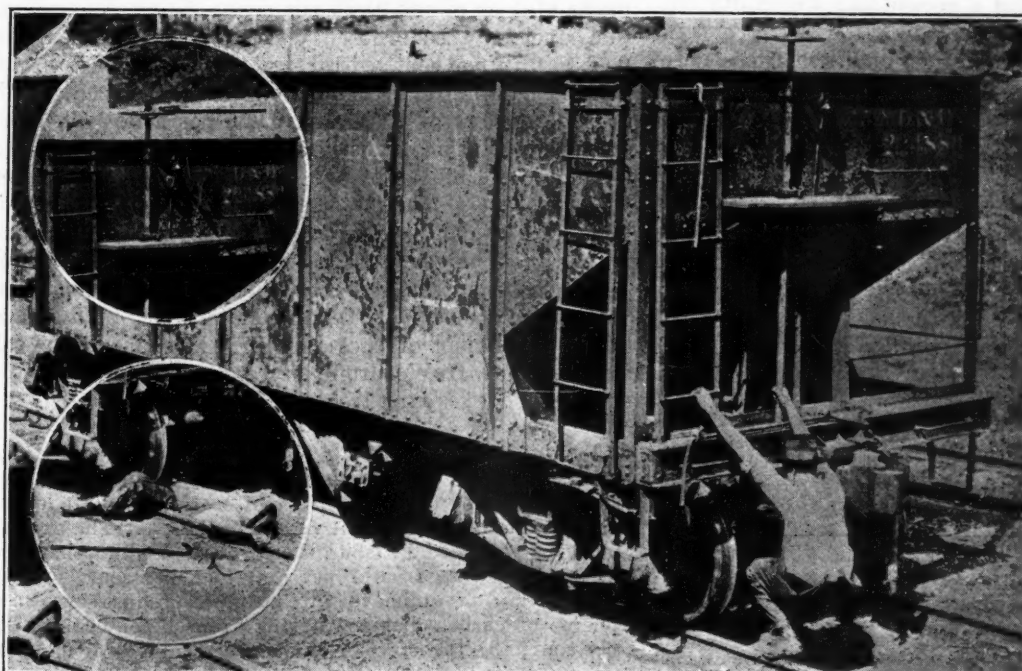


FIG. 1

Brakestick Accident

Instead of hanging his hooked brakestick on the ladder when about to kick off the brake, as shown in the main illustration, the coal trimmer leaves it on the brakewheel (as in upper insert). From this insecure position it is quite likely to fall on him, for the revolving of the wheel, on the sudden release of the brake, is apt to shake the stick loose.



FIG. 3—NO CLEARANCE BETWEEN CARS AT SWITCHES

Accidents frequently occur from this cause, especially where the switch room provided is insufficiently long. A post driven and painted so as to be readily visible may be used to notify the trimmer when he has lowered the car far enough to provide adequate clearance.

of standing on the brake platform to set the brake in the manner shown in the right half of Fig. 4. Men standing in this position have no way to save themselves in case the brakestick should slip; quite frequently have men fallen from the car and been run over as a result of this practice. The safe way is to apply the brake as shown in the left half of Fig. 4—with one hand on the brake of the wheel and the other applying the pressure to the brakestick. Then if it should slip or break, the man will not lose his balance, as he has a firm hold on the brakewheel itself.

Another danger, which is so apparent that it may seem almost foolish to mention, is shown in Fig. 3. Here the car is not moved far enough on the switch to clear, and a second car coming down on the other track is about to bump into the corner of the first car. A fatality resulted recently when a man riding on the brake platform was caught and crushed between the corner of his own car and a second car which did not clear on the switch.

Car droppers become so expert, and sometimes gain

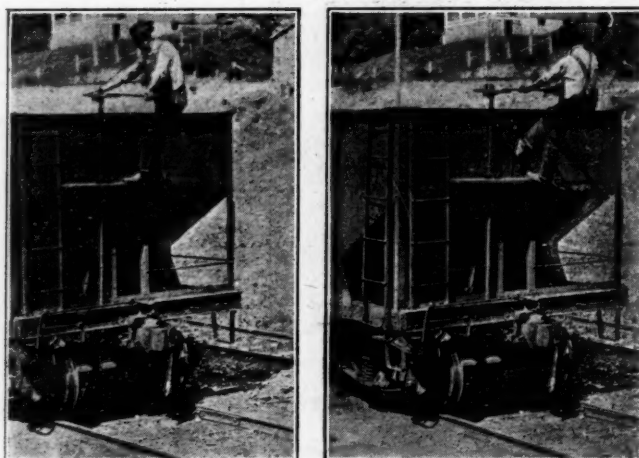


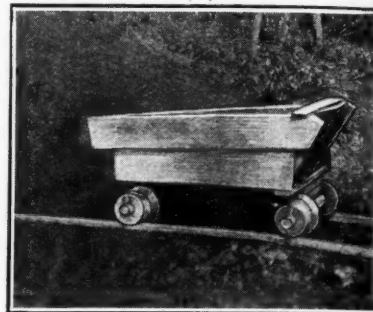
FIG. 4—BEWARE OF RELYING ON THE BRAKESTICK

In the position shown in the first illustration no harm would come from the brakestick slipping. If the trimmer, however, puts his whole weight on to the stick and it slips, an extremely ugly fall is inevitable and death or permanent injury is not unlikely.

so much confidence in themselves, that they often walk along the edge of the car in going from one end to the other. There are a number of accidents recorded caused by men falling and sustaining serious injuries (see Fig. 2).

Scene from Colliery on Brownies Creek

TO Ivor Livingston, of Paint Creek, Ky., we are indebted for the illustration of a mine car and its colliery surroundings at Brownies Creek, Bell County, Kentucky, about twelve miles from the railroad station which is located at the mouth of the creek. No railroad runs up the valley. The mine is operated by farmers for their own coal supply. The gage of the car track is 24 in. Every part of the car is of wood except for the few nails in the bed. The rails also are of that material.



Specifications Proposed for Tool Steel

A TENTATIVE specification for carbon tool steel has been prepared by the American Society for Testing Materials and has just been submitted to industry. The specification requires that the steel shall be made by either or both the crucible and electric processes, with the exception of class C, which may also be made by open-hearth methods. It shall conform to the following requirements as to chemical composition:

CHEMICAL SPECIFICATIONS FOR CARBON TOOL STEEL

Elements Considered	Class A Per Cent	Class B Per Cent	Class C Per Cent
Carbon.....	varying	varying	varying
Manganese, maximum.....	0.400	0.450	0.600
Phosphorus, maximum.....	0.020	0.025	0.035
Sulphur, maximum.....	0.025	0.035	0.040
Silicon, maximum.....	0.350	0.350	0.250

The carbon percentage shall be as ordered, the specifications varying by ranges of 0.1 per cent, with rejection limits plus or minus 0.025 per cent. As an illustration, tool steel may be ordered with a carbon range from 0.60 to 0.70 per cent, with rejection limits of 0.575 and 0.725 per cent, or from 0.75 to 0.85 per cent, with rejection limits of 0.725 and 0.875 per cent. The permissible variations in the size of the material ordered shall be determined by agreement between contractor and purchaser. The material shall be free from injurious defects and have a workmanlike finish. The analysis shall be made in accordance with methods for testing carbon tool steel contained in the Book of the American Society for Testing Materials, Standards of 1921. Criticism of these specifications should be addressed to G. H. Woodroffe, secretary of Committee A-1 on Steel, Parkesburg Iron Co., Parkesburg, Pa.

IN THE STEEL GALLERY used at the Pittsburgh (Pa.) station of the U. S. Bureau of Mines in conducting experiments regarding the explosibility of coal dust, the following determinations have recently been made: (1) The explosibility of standard Pittsburgh coal dust in atmospheres of methane varying from 1 per cent to 8 per cent; (2) the explosibility of standard Pittsburgh coal dust in atmospheres of carbon dioxide varying from 1 per cent to 33½ per cent; (3) the effect of varying percentages of moisture upon the explosibility of standard Pittsburgh coal dust.



Problems of Operating Men

Edited by
James T. Beard



Practical Advantages Gained in Use of Double-Conductor Cables

Room Tracks Seldom Well Bonded—Single-Conductor Cables of Little Use Under Certain Conditions—Possible Short-Circuit in a Double Conductor Offset by Its Many Advantages

KINDLY permit me to offer a few suggestions in regard to the use of single and double cables for electric gathering locomotives. This question was asked by an Ohio electrician, *Coal Age*, Oct. 12, p. 594. In the excellent reply given to this inquiry, the several types of cables used by gathering locomotives have been described, and the conditions explained under which single and double conductors should be used.

The fact is well known that the use of a poorly bonded return rail, not only causes a great loss of time by reason of burned-out armatures, but also results in a loss of power, making the locomotive unable to pull its load.

Practically, this condition is most frequent in rooms and cross-entries where the same attention is not given to keeping up the roads, as on the main headings. In many cases, corroded fish-plates have been used and these have not been securely bonded to the rails. It is easy to see that there is every chance for an armature to be burned out, or for the locomotive to be short of power when a single-conductor cable, which is dependent on a rail return, is used.

ADVANTAGES AND DISADVANTAGES OF DIFFERENT TYPES OF CABLES

Another great disadvantage, in the use of a single-conductor cable, occurs when a locomotive is badly derailed, which will happen at times. Much time is then lost in trying to get a sufficient return to enable the motor to operate and assist in putting the locomotive back on the rails.

Although there is a considerable disadvantage in a two-conductor cable, by reason of a possible short-circuit occurring within the cable, I believe that the saving of armature burn-outs and delays caused by insufficient power, due to poor bonding of the rails when using a single conductor, will more than offset any liability to possible short-circuiting of the wires in a double-conductor.

Also, it is my opinion that the advantages gained in the use of a double-conductor largely outweigh the difficulties of splicing this conductor, in the event a splice has to be made. We must not forget, also, that where a change of track is necessary, the use of a double-

conductor cable obviates the necessity for securing good bonding on the rails in making such changes.

These advantages give me a decided preference in favor of double-conductor cables, which should be of the concentric type mentioned in the reply to the inquiry.

Linton, Ind. JOHN R. LUXTON.

Eliminating Expense of Packwalls, Longwall-Panel System

Face headings replace the gateways maintained by building packwalls—Single face headings, however, provide no means of ventilating when drawing back pillars.

IN AN effort to eliminate the expense of building packwalls for the maintenance of roads or gateways to reach the working face, in the longwall-advancing system of mining, M. L. O'Neale described a method of driving face headings, keeping them a little in advance of the longwall face. (*Coal Age*, Vol. 21, p. 877.)

These headings were to be driven three abreast and, while affording an easy means of reaching the longwall face, also provided for maintaining good ventilation when drawing back the pillars after the headings had reached the limit of the panel. In reviewing this improved method of longwall work, W. H. Luxton, in his letter, Sept. 21, p. 455, suggests driving a single, face heading instead of employing the triple-entry system proposed by Mr. O'Neale.

PROPOSED PLAN TO AVOID PAYING ENTRY YARDAGE

Mr. Luxton expresses the opinion that the proposed system can be simplified and the cost of its execution much decreased, by avoiding the large expense for yardage due to driving three face headings where but one is required. Evidently, he has not stopped to think how his plan of driving single headings would work out when drawing back the pillars flanking the heading.

No doubt, it would save yardage to drive a single heading, and the plan would work all right in the advancing stage; but how would it serve when it became necessary to draw back the

pillars. If I am not mistaken, the goaf would then have closed tight against the pillars on the sides where the coal had been taken out.

It has been my experience that, in work of this kind, it is impossible to provide the necessary circulation of air to permit the pillars to be withdrawn. I believe that, if the pillars are to be taken out, at least one air-course must parallel the face heading. While this air-course would be of no particular advantage in the advancing stage, it is essential for circulation, in the work of robbing out the pillars.

It is possible, of course, to maintain a fair circulation of air along the worked-out side of the face-heading pillars, by building good packwalls a few feet from the solid coal forming the pillars. However, if I understand rightly, the purpose of the proposed plan was to eliminate the necessity of building and maintaining these packwalls. In my opinion, the cost of maintaining such airways would exceed the cost of driving an extra heading in the coal.

ORIGINAL PLAN OF FLANKING PLACES INCREASES TONNAGE

Referring, now, to the original proposition presented by Mr. O'Neale, I see no objection to his idea of flanking his face headings, on each side, with a place running parallel to it. I believe these places would be driven wide and would involve no yardage expense. Driving such flanking places would have the immediate advantage of increasing the tonnage obtainable from each face-heading system, which would have a tendency to decrease the general cost of production.

One practical advantage gained by keeping these flanking places a yard or so ahead of the longwall face is that they provide convenient places for the machine to start and finish a cut along the face. Also, these places provide needed room for the machine where it will be out of the way when loading out a cut.

The advantage of these flanking places is even greater when chain machines of the so-called longwall type are employed. I was recently in several Belgian mines where they are using these machines, manufactured by a well known American firm. The results obtained are surprisingly good. In those mines, it was found not only advisable but necessary to provide all longwall faces with flanking places of the kind suggested and for the reasons I have mentioned.

F. C. CORNET,
Consulting Engineer.

New York City.

Occurrence and Causes of "Bumps" in Coal Mines

Meaning of the term "bumps"—Numerous instances of their occurrence—Probable causes of the phenomena—Methods suggested to prevent such happenings.

IN THE REPLY to an inquiry regarding a method of working that would reduce the danger from sudden outbursts of gas, *Coal Age*, Aug. 24, p. 290, reference was made, incidentally, to the ominous pounding that sometimes takes place in the strata and which the miners term "bumps."

The term has recently come to have much significance in this locality and, if I am rightly informed, the same is true in a number of other coal-mining districts in the Northwest. Most of our miners have learned by experience and fully realize the danger that is imminent when they hear these ominous sounds, as of the working of tremendous forces hidden in the strata around and about them.

It is well to explain, in the start, the meaning of the term "bumps" in its application to coal mining. Thomas Graham, former chief inspector of mines for the Province of British Columbia, in a paper read at the Joplin meeting of the Mine Inspectors' Institute of America, June 13, 1916, makes the following statement:

MEANING OF THE TERM "BUMPS"

"The term 'bumps' is a somewhat local expression used to describe the ominous sounds that betoken the movement of the strata overlying the several coal seams operated in the Crows Nest Pass coal field. These bumps, although usually accompanied by more or less heavy discharging of gas, are not in the nature of the outburst of gas and coal I have just described.

"The Coal Creek Colliery has been the seat of most of the bumps, which were sufficiently severe to shake the houses in the village and, at times, cars and other movable materials were displaced in the mine."

In less than six months after the reading of Mr. Graham's paper (November, 1916), another series of bumps occurred in the No.-1 East mine, at Fernie, B. C., more severe than any that had preceded them. A description of this mine and the effect of the November bumps will be found commencing on page 345 of the report of the Minister of Mines, British Columbia, for the year 1917.

INVESTIGATION AND REPORT BY THE FEDERAL BUREAU OF MINES

George S. Rice, engineer, Federal Bureau of Mines, who investigated the phenomena, by request of the minister of mines, describes these bumps as manifestations of pressure, occurring only in mines at great depth, usually exceeding 1,000 ft. In his report, Mr. Rice states:

"If the measures overlying the mine are soft and pliable, such as shale beds, bumps will not occur, although

mine squeezes may take place. Bumps, therefore, occur only when there are massive and rigid beds above, such as sandstone, conglomerate and limestone.

"Mine squeezes originate where the pressure thrown on the mine pillars is sufficient to crush them, or the immediately overlying roof or underlying floor is too weak to withstand the load put on it through removal of part of the natural support by the excavations; but such squeezes will only result in bumps, as stated previously, when there are rigid rocks of great thickness above."

INSTANCES OF THE PHENOMENA OCCURRING ELSEWHERE

The same report describes the phenomena as not being confined to any single district, similar occurrences having been manifest in coal mines working under the Book Cliff mountain, in Utah, and in the Carbonado mines, in the State of Washington, where the workings were under the foothills of Mt. Rainier. In both of these two latter cases, the cover exceeded 2,000 ft. in depth.

The phenomenon has also proved a serious menace, the report states, to a South Staffordshire coal mine, in Great Britain. This mine was working the ten-yard seam, averaging from 24 to 30 ft. in thickness and lying at a depth of 1,500 ft. below the surface.

To my mind, this entire subject of the causes and means of preventing bumps is of peculiar interest and importance. Not a few mining men, in localities where the phenomena have been manifest, regard them as something mysterious. It is in the hope of enlightening the minds of any who hold to such ideas, that I have offered these remarks. It is my earnest hope that the subject will be discussed from an intelligent standpoint and that methods of working will be outlined that will afford a maximum degree of security against these dread occurrences.

CONCLUSIONS REACHED BY THE INVESTIGATORS

The investigation made by the Federal Bureau of Mines was undertaken at the request of the Minister of Mines, Province of British Columbia. The conclusions reached by Mr. Rice, in conference with W. F. Robertson, provincial mineralogist, Thomas Graham, then chief inspector of mines, and district inspectors T. H. Williams and George O'Brien, should prove of great interest and value, wherever the mining of coal is being prosecuted under deep cover and the overburden consists of rigid strata that refuse to break when the extraction of coal has caused a general subsidence of the mine roof over a large area. On this point, the investigators conclude as follows:

"That bumps occur only when there is deep cover over the mine and where there has been a subsidence of the roof over an excavation or squeezed area; the rigid strata above has not flexed downward, but spans the sunken area. When the span, through continued min-

ing and widespread subsidence, becomes too great for the rock strata to bridge over, enormous masses may fall and while the distance may be only a few feet or even a few inches, the sudden arrest of rock masses weighing possibly thousands of tons will cause a shock wave in the underlying stratum, which gives the effect of a local earthquake.

"After one rigid stratum has given way in the interior of the measures, there is opportunity for similar giving way of successively higher strata; but, it is thought, with less and less effect on the mine workings, as the spaces become more or less filled with broken rock and the blow is cushioned; also, as the vertical distance above the workings becomes greater with each successive fall."

May we not hope to hear from others on this important matter?

MINE FOREMAN.

—, B. C., Canada.

Testing a Safety Lamp With a Carbide Lamp

Method used by one fireboss to test his safety lamp—After cleaning and putting lamp together, it is exposed to acetylene gas from a carbide lamp—Discussion wanted.

REGARDING the question of testing a safety lamp before taking it into the mine, allow me to say for the benefit of other firebosses that, in all my experience in firebossing, I have never yet tested my lamp by blowing into it.

It has always been my practice, and I consider it a safe one, to test the safety lamp by exposing it to acetylene gas generated in a carbide lamp. It is my belief that any lamp that passes this test is safe to be taken into the mine and exposed to a body of firedamp.

After the lamp has been thoroughly cleaned, put together and lighted, it has been my custom to take a carbide lamp and put it near the gauze of the safety lamp, allowing the gas generated in the former to pass into the combustion chamber of the safety, where it fires and burns.

My claim is that if there is any imperfection in the gauze, or if there is any leakage below the glass, because of imperfect washers, the flame of the gas burning within the safety lamp will pass out and ignite the gas surrounding the lamp. I have used this method of testing my lamp a long time and have never known it to fail. It is my habit to apply the same test to the lamps of the miners in my charge.

Shickshinny, Pa.

FIREBOSS.

Need of Closer Supervision in All Underground Work

Visits to many mines show need of good foremen—Mines suffer when foremen are employed for a short time only.

HAVING made a number of visits recently to different mines, I have been impressed with the thought that the employment of an efficient, private

mine or safety inspector, where a company is operating several mines, appears almost a necessity.

A recent writer in *Coal Age* has drawn attention to the lack of interest displayed by foremen who drift from place to place, such men seldom remaining in one place longer than they are able to get out cheap coal by robbing the mine. In every such case, the loss to the company is hardly realized until the damage to the mine has been done.

My observation, in going from place to place, has showed me more clearly than ever before, the need of employing good foremen. In several instances, I have observed where the employment of a supervising inspector would easily save his wages in many ways.

By preventing waste, improving the ventilation and drainage of the mine and increasing the daily tonnage by systematizing the haulage and hoisting of coal, he would reduce the cost of production and make his services valuable to his employers.

These remarks are offered only by way of suggestion, fully realizing as I do that there are many good mine foremen whose work requires no checking up or supervision. At the same time, it cannot be denied there are numbers of indifferent and careless foremen and others who are unpractical, and that a large saving can be effected by closer supervision of their work on the part of the mine foreman and assistant foreman.

Chambersville, Pa. JOHN BUGGY.

Inquiries Of General Interest

Locking Car on Self-Dumping Cage

Self-Dumping Cage Equipped with Sidehoops and Lugs to Hold Car in Place—Trouble Caused by the Lugs Failing to Work at Times When Needed—Some Form of Additional Lock Desired

WE HAVE a problem that we are minded to present to *Coal Age* and its practical readers, hoping that they will be able to offer suggestions that will solve our difficulty. The proposition is as follows:

At one of our mines, we are using what is known as the Bond cage, manufactured by the William Ellison Machinery Co., St. Louis, Mo. This cage is equipped with two steel loops or hoops that fit over the wheels of the car, on each side of the cage. Their purpose is to hold the car on the rails when the cage is dumping. Besides these loops at the sides of the car, there are also two upright lugs that catch the wheels in front and prevent the car from running across the cage.

Now, our trouble is that these lugs, at times, fail to work, with the result that the car is free to run across the cage far enough to be caught between the cage floor and the curbing of the shaft. When this happens, there is sure to be a wreck that tears out the guides, before the engineer is aware that anything is wrong. We have tried to figure out some way of putting in an additional lug on the platform or some other place on the cage, for the purpose of giving additional security against accident. We shall very much appreciate any suggestions that will accomplish the desired result.

—, Ill. SUPERINTENDENT.

The correspondent has not stated the precise position of the upright lugs, or given other information that would make clear the exact situation in hand. If cars are to be caged from both sides of the mine, at the shaft bottom, the

upright lugs mentioned would have to be movable to permit cars to enter the cage from either side. On the other hand, if cars are caged from one side of the shaft only, these upright lugs would be permanent or fixed in position at the back of the cage. The statement that these lugs, at times, fail to work suggests that they are movable; but how their movement is actuated is not explained.

Different forms of devices are used to lock cars on a self-dumping cage. The most common and probably the most serviceable device consists of two movable steel hoops, one on each side of the cage, and actuated by a lever that automatically engages a projecting lug in the shaft, as the cage rises to the point where it is dumped. Instead of a hoop reaching over the tops of both wheels, four movable hooks are sometimes employed, two on each side of the cage, one hook holding each wheel firmly in place as the cage is dumped.

We have seen a fixed hoop or strap so arranged as to project over the tops of both wheels. These are fixed in a position not to interfere with the car running on and off the cage, while holding the car on the rails as the cage is dumped. In this case, however, the car is locked on the cage automatically by a carriage spring fixed firmly to the floor of the cage beneath the car. This spring is made to engage a lug on the bottom of the car.

At other times, a heavy iron rod is attached to the floor of the cage, the end of the rod being bent at right angles so that it can be turned upward in a position that will prevent the car from

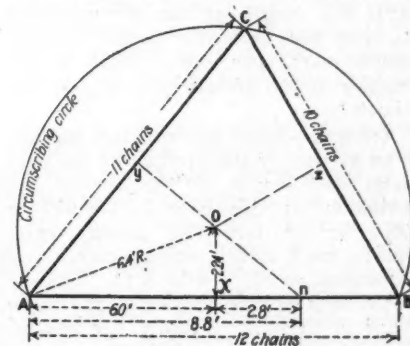
running forward when the cage is dumped. This arrangement, however, is not recommended. Many readers will probably have other forms and methods to suggest for securing the car to the cage when dumping, and we shall be glad to learn of the most satisfactory means employed.

Three-Brothers Problem

Problem to find radius of circle circumscribing a triangle—Solving a triangle when the three sides only are given.

KINDLY permit me to ask for the solution of a problem over which I have puzzled vainly, for some time. The problem has a practical bearing, as it relates to the central location of a well, for three brothers whose homes form the vertices of a triangle, the sides of which are 10, 11 and 12 chains, respectively. The problem is to locate the well at an equal distance from each brother's house.

Evidently, this is a question of finding the radius of the circumscribing circle of this triangle. I have endeavored to



solve the problem graphically, by erecting perpendiculars at the middle point of each side of the triangle. The intersection of these perpendiculars should give the center of the circumscribing circle. But, I have been unable to calculate the length of the radius of this circle, which is the distance of the well from each brother's house.

Carrolltown, Pa. T. J. MCCUE.

The correspondent has stated his problem correctly. The location of the well is at the center of the circle circumscribing the triangle formed by the lines joining the three houses. Referring to the accompanying figure, this location is at O, which is the intersection of the three perpendiculars Ox, Oy, Oz, erected at the middle point of each respective side of the triangle ABC.

The problem involves the solution of a triangle having its three sides given. The first step is to calculate the angle at A, using the formula

$$\begin{aligned}\cos A &= \frac{b^2 + c^2 - a^2}{2bc} \\ &= \frac{11^2 + 12^2 - 10^2}{2 \times 11 \times 12} = 0.625\end{aligned}$$

In this formula, the sides lying opposite the respective angles A, B, C are indicated by the corresponding small

letters a, b, c . The angle A , having a cosine 0.625 is found to be $51^\circ 19'$. Now, extend the line yO till it meets the line AB at n . Then, in the triangle Ayn , $Ay = 5.5$ chains; and $An = Ay \div \cos A = 5.5 \div 0.625 = 8.8$ chains.

Again, since $Ax = 6$ and $An = 8.8$ chains, $xn = 8.8 - 6 = 2.8$ chains. But, the angle xOn , being equal to the angle A ($51^\circ 19'$), its tangent is 1.25; and $Ox = 2.8 \div 1.25 = 2.24$ chains.

Finally, in the right triangle AOx , the hypotenuse AO , which is the required radius of the circumscribing circle, is equal to the square root of the sum of the squares of the two sides;

$$AO = \sqrt{Ox^2 + Ax^2} \\ = \sqrt{2.24^2 + 6^2} = 6.4 \text{ chains}$$

Therefore, the desired central location of the well is 6.4 chains from each of the three houses.

Examination Questions Answered

Mine Managers' Examination Nova Scotia, 1922

(Selected Questions)

QUESTION—The total rubbing surface of a square airway being 160,000 sq.ft., the length of the airway 5,000 ft., and the quantity of air passing 80,000 cu.ft. per min., what is the velocity of the air current, in feet per minute?

ANSWER—Since the rubbing surface, in an airway, is the product of the perimeter and length of the airway, the perimeter in this case is $160,000 \div 5,000 = 32$ ft. The airway being square, each side is one-quarter of the perimeter, or $32 \div 4 = 8$ ft. The sectional area of this airway is, therefore, $8 \times 8 = 64$ sq.ft. Finally, the velocity of the air current is $160,000 \div 64 = 2,500$ ft. per min.

QUESTION—If it becomes necessary to stop a fan for repairs, how will you keep the mine clear of gas in the meantime? What precautions should be taken before stopping the fan?

ANSWER—A mine generating a considerable quantity of gas should be provided with duplicate fans, each fan having a capacity sufficient, when running alone, to keep the mine free from gas. A mine thus equipped is in no danger should the necessity arise for stopping one of the fans, temporarily, for repairs.

In the absence of such equipment at a gaseous mine, it may not be possible to keep the mine in a safe condition, for any length of time, after shutting down the fan. In that case, the men should be notified and withdrawn promptly from the mine. It is not safe to take any chances by permitting the men to work when the customary means of ventilation is temporarily disabled.

It may happen that, under favorable conditions, there is sufficient natural ventilation to keep the main airways clear, which will greatly assist the safe withdrawal of the men. Such natural ventilation, however, cannot be expected to keep the working places safe and clear of gas, while the fan is not working.

QUESTION—If 10 hp. produces 20,000 cu.ft. of air per min., in a mine, what horsepower will be required to produce 35,000 cu.ft. per min., under the same conditions?

ANSWER—In mine ventilation, the horsepower producing circulation in a given mine, under like conditions, varies as the cube of the quantity of air produced. In other words, the horsepower ratio is equal to the cube of the quantity ratio. Then, calling x the horsepower required to produce 35,000 cu.ft. per min., where 10 hp. produces 20,000 cu.ft. per min., we have

$$\frac{x}{10} = \left(\frac{35,000}{20,000} \right)^3 = \left(\frac{7}{4} \right)^3 = \frac{343}{64}$$

$$x = \frac{10 \times 343}{64} = 53.6 \text{ hp.}$$

QUESTION—Many explosions have been caused by blownout shots. Describe fully the precautions that a manager should enforce to prevent explosions occurring from this cause.

ANSWER—Blownout shots are chiefly caused by overcharging a hole; insufficient tamping; locating the charge too deep on the solid; or failing to properly mine or sidecut a shot before firing the charge. A blownout shot is sure to result when the line of least resistance extending from the charge to the free surface of the coal, corresponds more or less closely with the axis of the hole. This is called a deadhole. Blownout shots may result from using too quick a powder or different grades of powder in the same hole.

In order to prevent these occurrences, the mine manager should make and enforce strict regulations, in regard to the blasting of coal and the use of explosives. Only permissible explosives should be used and all shots should be examined, charged and fired by competent persons, authorized to perform this work.

QUESTION—In a mine ventilated by three splits of air, A, B and C: A is 500 yd. long and 5×6 ft., in section; B is 800 yd. long and 5×4 ft. in section; C

is 700 yd. long and 7×3 ft. in section; all starting and rejoining at the same point. If the quantity of air in A is 35,000 cu.ft. per min., how much air will B and C each take if subject to the same pressure as A.

ANSWER—Assuming natural splitting in which no regulators are used in any of the airways, the quantity of air passing in each split is proportional to the split potential. Therefore, calculating the relative pressure potential, for each of the given splits, we have the following:

A, 5×6 ft., 1,500 ft.; $a = 30$ sq.ft.;
 $s = 33,000$ sq.ft.

B, 5×4 ft., 2,400 ft.; $a = 20$ sq.ft.;
 $s = 43,200$ sq.ft.

C, 7×3 ft., 2,100 ft.; $a = 21$ sq.ft.;
 $s = 42,000$ sq.ft.

To shorten the calculation, we take the lowest relative values, which are for the areas, 30, 20, 21; and, for the rubbing surfaces, 330, 432, 420. Using these values, we find the several split potentials as follows:

$$A, X_a = a \sqrt{\frac{a}{s}} = 30 \sqrt{\frac{30}{330}} = 9.045$$

$$B, X_b = 20 \sqrt{\frac{20}{432}} = 4.303$$

$$C, X_c = 21 \sqrt{\frac{21}{420}} = 3.240$$

Finally, assuming Split A passes 35,000 cu.ft. per min., the quantities in each split being proportional to their relative potentials, we have

$$B, 9.045 : 4.303 :: 35,000 : x = 16,650 \text{ c.p.m.}$$

$$C, 9.045 : 3.240 :: 35,000 : x = 12,540 \text{ c.p.m.}$$

QUESTION—Supposing 9,000 cu.ft. of air per minute circulates through a regulator 30×20 in.; it is desired to find how much air will circulate if the opening is made 30×30 in.

ANSWER—If it is assumed, which is the probable meaning of the question, that this regulator is placed in an airway and the opening of 30×20 in. is increased to 30×30 in., it is not possible to calculate the increase in the quantity of air passing through the regulator, without knowing the equivalent orifice of the mine or airway. Enlarging the opening in the regulator increases its orifice, without increasing the orifice of the mine or airway, and there is a lack of proportion due to this change.

On the other hand, considering the regulator by itself and assuming a constant pressure, under which the air flows through the opening, the increase in quantity would then be proportional to the increase in area, giving $30/20 \times 9,000 = 13,500$ cu.ft. per min.

This, however, is not the case with a regulator placed in an airway. Assuming a constant power producing the circulation in the airway, when the regulator opening is enlarged, the pressure due to the regulator falls and the quantity of air in circulation is increased, which increases the pressure due to the frictional resistance of the airway. The increase in quantity will then depend on the relative resisting powers of the airway and the regulator.

Commission's Fact-Finding Machinery Taking Form; Technical Experts Drafted to Assist

BY PAUL WOOTON

Washington Correspondent of *Coal Age*

The fact-finding machinery being set up by the President's coal commission is now taking definite form. While the commissioners expect to obtain much of their information from the broad conclusions of outstanding men engaged in coal production, distribution, wholesaling and retailing, a vast amount of data must be collected by a technical staff. That portion of the work which deals with costs of production will be under the immediate direction of David L. Wing, whose title is to be expert investigator. As the work progresses Mr. Wing will gather other statistical facts. C. E. Leshner, editor of *Coal Age*, has been drafted to direct the engineering investigations which the commission will conduct. Coal specialists from various bureaus will be transferred to the commission.

Assurances of co-operation have been given by each national association connected with the coal business. A statistical program is being worked out which it is believed will cause little dissension. It is being arranged so that those engaged in the business can furnish the information in the way it is carried on their books. Roderick Stephens, president of the Retail Coal Merchants' Association, has conferred at length with members of the commission, as has a committee representing the public utilities. More formal conferences are in contemplation. The one with the retailers is to be held the latter part of November. There is every evidence that the commission will have the whole-hearted co-operation of the whole coal business.

Where statistical and other information is furnished by one branch of the industry, arrangements are being made whereby the other branches concerned and the commission itself can check the figures as they are being compiled. In this way it is hoped to compile statistical data the correctness of which will be admitted by each branch of the industry.

Since the government's law officers decided that Dr. George Otis Smith may not lead a double official life, it became necessary for him to resign his position as director of the United States Geological Survey. After having discussed the matter personally with the President, Dr. Smith presented a formal resignation in which he, among other things, said: "Some plans I have had in mind for the betterment of the Geological Survey's contributions to the public are unfinished, even after my fifteen and one-half years as director. I, therefore, regret this break in my work, yet, while I hope I may have an opportunity for further service with the Geological Survey, I appreciate so keenly the importance to the nation of the task you have entrusted to the coal commission that I am willing to make any sacrifice needed to enable me to devote all my energies to that special work for the next eleven months."

In his reply and in a statement issued at the White House the President explained that Dr. Smith's resignation is of a temporary character and that he will be reappointed as director of the Survey when his duties with the coal commission shall have been concluded.

The same provision of law bars Judge Alschuler from serving in two official positions. The President will ask Congress to make an exception in this case, but until such a law is passed Judge Alschuler will not qualify as a member of the commission. He will work with the commission, however, in an informal capacity.

The Geological Survey came in for praise in a recent editorial in the *Philadelphia Public Ledger*. In discussing the coal commission the editorial says that "the appointment of George Otis Smith was an act for which Mr. Harding cannot be commended too highly. The Geological Survey is purely scientific, non-political, magnificently efficient and brilliantly administered."

The coal commission has been endeavoring since its organization to arrange for the appearance before it of both Secretary Hoover and Secretary Davis. Other duties of these secretaries, however, have made this impossible.

Coal Commission Unable to Undertake Work Outside of Main Investigation

Although the mandate from Congress to the United States Coal Commission was to procure information on all problems connected with the coal industry, the purpose of the commission's investigations as set forth in the law is to aid, assist and advise Congress in its efforts to help the industries of the country and the people generally and to maintain the uninterrupted flow of commerce among the states. To these general instructions Congress attached specific orders for reports and recommendations, the first of which is required not later than Jan. 15 next. The scope of the task laid upon the commission recently appointed by President Harding is plain as well as its urgency, so that it is evident that no work outside the main investigation can be undertaken.

Already the commission has received complaints regarding insufficient local supplies of coal, exorbitant prices demanded by dealers and other evidences of unsatisfactory functioning in the coal business. A telegram just received from an Oklahoma citizen, for example, calls for immediate investigation of a mine-labor dispute, undoubtedly a distressing local condition which affects consumers as well as producers of needed coal, yet the requested action by the coal commission is not possible. The commission could easily dissipate its energies in following up such complaints, and without results, for the law gives it no executive functions, and the commission therefore would be without authority to act in relief of these individual instances, which after all are but localized symptoms of the disorder affecting the whole industry.

Nine-Tenths of Coal Industry's Troubles Laid to Inadequate Transportation

If adequate transportation could be had for coal it would remedy nine-tenths of the trouble within the industry. A statement to that effect is being accentuated in official circles in Washington. Unless some step is taken to provide more transportation for coal, the difficulties of the industry will increase, especially those which pertain to labor, until strikes become annual occurrences. A prediction to that effect has been made by a high administration official. Intermittency, he contends, may be charged almost entirely to lack of transportation, while overexpansion may be attributed largely to the same cause. In the opinion of this official, unnecessary mines would be eliminated if the highly efficient properties could rely upon a constant car supply. As it is, the well-equipped and efficient mine is penalized each time there is a car shortage. Each serious emergency costs the public a greater sum than the entire cost of the new cars that are needed to straighten out the situation.

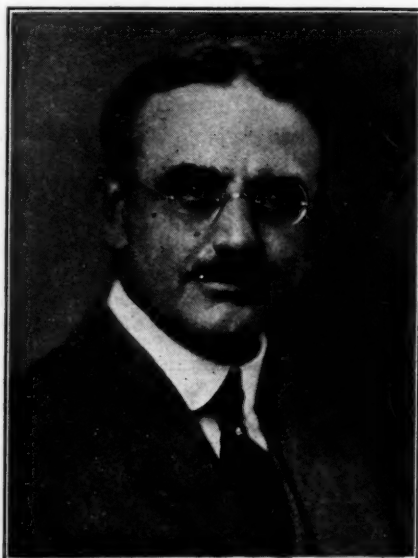
In that connection it is pointed out that the country has come through this emergency at much less cost than was the case during the emergency period which preceded it. The average price of coal during the emergency growing out of this year's strike is figured as having been \$3.77, compared with \$6.50 during the preceding emergency. Thus far this year, it is asserted, there has been no single case in which a public utility has been forced to suspend operation or any

industrial establishment to close down for lack of coal. This is attributed in part to the voluntary restraint in prices charged and because of the foresight of industries and public utilities in stocking up before April 1. Despite the long strike, prices never would have gotten out of hand, it is declared, had there been sufficient transportation.

The shortage of coal cars is only one symptom of the systematic starvation to which American railroads are being subjected. New lines are not being built in proportion to the increase in population and in industrial activities. Terminal facilities have become woefully inadequate, adding greatly to the time of each car's turn-around. The hope is expressed that the Interstate Commerce Commission soon will have time to take up work in connection with consolidations. Since it is clearly unconstitutional to compel consolidations, it is believed that some inducements will have to be held out to effect them. One plan is to reinvest recaptured profit in the group from which it came. It is becoming more and more evident that something must be done to save the weak roads. Railroad financing generally must be made easier. Nothing can be gained by plunging railroads into receiverships.

Philip S. Smith to Head Geological Survey; David White Retires as Chief Geologist

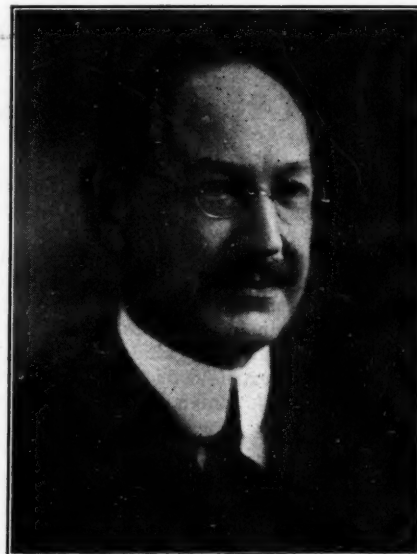
Resignation of Dr. George Otis Smith as director of the United States Geological Survey, so that he could qualify legally as a member of the President's coal commission, will place the full responsibility for the conduct of the Survey during the next eleven months in the hands of Philip S. Smith, who has been serving as the Survey's



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PHILIP S. SMITH

administrative geologist. The new director has spent practically his entire career on the staff of the Survey and is thoroughly conversant with its work. While his outstanding accomplishments have been on his geological and economic studies in Alaska, he has had wide experience with many phases of the work done in his bureau. He is widely known as an unusually capable geologist, with which he combines great executive capacity.

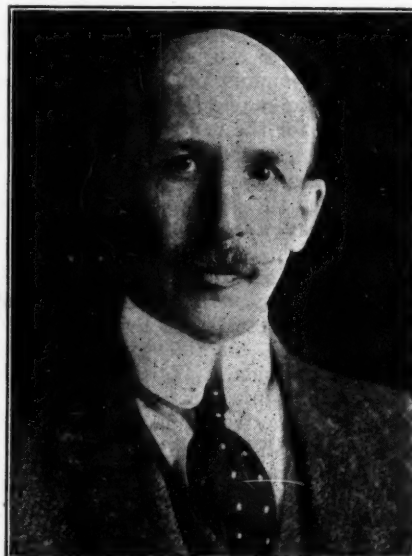
Simultaneously with Dr. George Otis Smith's resignation came the announcement that David White will retire as the Survey's chief geologist to resume his research work. He will be succeeded in the office of chief geologist by W. C. Mendenhall. Mr. Mendenhall has been a member of the Survey staff for 28 years. His geological field work has extended from the southern Appalachians to Alaska. For more than ten years he has served as geologist in charge of the Land Classification Board. This latter place will be filled by the promotion of Herman Stabler. In connection with Mr. White's retirement as chief geologist Dr. George Otis Smith contributes this comment:



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DAVID WHITE

"On Nov. 16 David White will have completed ten years' service as chief geologist. This contribution to the administration of the Survey has been at the expense of his own scientific work, even though he has thereby increased the scientific value of the work of his associates. It seems fair that his oft-repeated request for permission to return to his own geological studies should now be granted, not only to gratify the natural desire of an investigator who has laid aside research problems one after another but to promote the advancement of our science.

"The return of Mr. White to productive research suggests anew the sacrifice involved in the administration of scientific work. Administration by scientists is the keynote of the Survey's policy, yet the intellectual cost item involved in this drafting of our best investigators must be kept down to minimum. Had I been free from other demands on my time this past summer, I would have taken this occasion to start a somewhat radical reorganization of the geological branch, the chief purpose of which would be to reduce its administrative overhead—too many geologists are giving valuable time to work for which they were not trained. Necessarily now this task of simplifying the organization must be left to the new chief geologist and acting director, but I ask for them a sympathetic acceptance of the proposal for a less elaborate but more elastic grouping of the activities of the branch. Not machinery, but product, is the measure of efficiency in a government scientific bureau."



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W. C. MENDENHALL

How the Coal Strike Affected Bituminous Coal Stocks Shown by Government Report as of Oct. 1

By W. F. MCKENNEY, F. G. TRYON AND E. E. FENN*

The government's report on coal stocks, just issued, places the total bituminous in the hands of commercial consumers at 22,000,000 tons on Sept. 1, and 28,000,000 on October 1.

To many observers of the coal market who were matching up the statistics of production with their own estimates of consumption during the strike, it will appear surprising that there could be anything like 22,000,000 tons left in the possession of consumers when the settlement came.

This article attempts to show how the country adjusted itself to the shortage in supply, and how the deficit between production and consumption was met. Details of the present condition of stocks will be found elsewhere.

There are two elements in the above-ground reserve of coal. The first element is the stocks in the hands of consumers. The second element is the coal in transit, coal on docks, in intermediate storage yards, en route in cars or vessels, and also for convenience coal stocked by the producer at the mine. Both of these elements may be drawn upon to meet a deficit in supply and they will be considered in turn.

BITUMINOUS STOCKS IN HANDS OF CONSUMERS

It is not feasible to collect statistics of the stocks of domestic consumers nor of the smallest steam buyers. Statistics of stocks must, therefore, be commercial consumers' stocks, including retailers.

The total quantity of soft coal in the hands of commercial consumers on Sept. 1, 1922, was between 20,000,000 and 24,000,000 net tons—probably 22,000,000 tons. The quantity on Oct. 1 was about 28,000,000 tons. This does not include coal in the cellars of domestic consumers, concerning which statistics are not available, nor steamship fuel, nor coal on the docks at the head of the Lakes, which is classed as coal in transit.

From the following table and Fig. 1, which shows the same data graphically, the coal history of the past year may be read. In anticipation of the strike, consumers began stocking up in January, and when the storage questionnaire was circulated on March 1, one month before the strike, their replies indicated stocks of 52,500,000 tons. The work of building up reserves continued through March, and from the facts of production it may be safely assumed that by April 1 stocks were at least 63,000,000 tons, although the figure cannot be given accurately because no questionnaires were circulated on that date. Then came the strike. For five and a half months consumption exceeded production and

the deficit had to be paid out of stocks. There was much speculation as to how long the reserves would hold out. Early in August the disturbed state of the market plainly showed that the danger line was near. The experience of 1920 had indicated that when stocks fall to 20,000,000 tons,

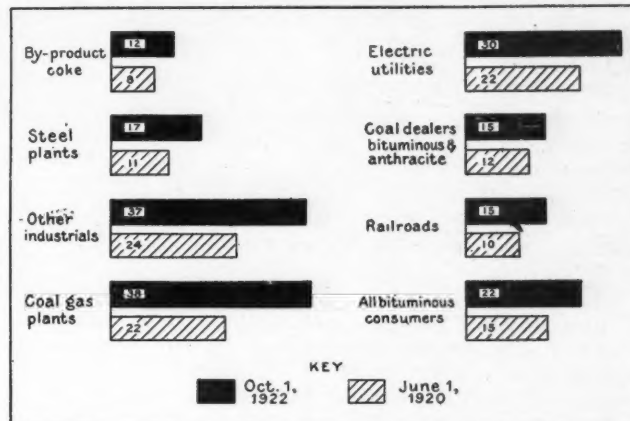


FIG. 2—DAYS' SUPPLY HELD BY DIFFERENT CLASSES OF CONSUMERS ON OCT. 1, 1922, AND ON JUNE 1, 1920

At the rate coal was being burned in September, 1922 (including alleged curtailment of consumption by industrials), the stocks of soft coal on Oct. 1, 1922, were sufficient to last 22 days. At the lowest point on record—June 1, 1920—the stocks were sufficient for only 15 days. Since Oct. 1 stocks have continued to increase.

high prices and anxiety result, and it was, therefore, very significant that the stock-taking of Sept. 1, only ten days after the general resumption in the Central Competitive Field, should show 22,000,000 tons.

ESTIMATED TOTAL COMMERCIAL STOCKS OF BITUMINOUS COAL IN THE UNITED STATES^a

(Net Tons)			
October 1, 1916.....	27,000,000	January 1, 1921.....	45,800,000
October 1, 1917.....	28,100,000	April 1, 1921.....	39,500,000
July 15, 1918.....	39,700,000	August 1, 1921.....	41,100,000
October 1, 1918.....	59,000,000	November 1, 1921.....	48,500,000
Day of the Armistice.....	63,000,000	January 1, 1922.....	648,000,000
January 1, 1919.....	57,900,000	March 1, 1922.....	652,500,000
April 1, 1919.....	40,400,000	April 1, 1922. At least.....	663,000,000
March 1, 1920.....	24,000,000	September 1, 1922.....	622,000,000
June 1, 1920.....	20,000,000	October 1, 1922.....	626,000,000

(a) The figures for 1918 in this table are based upon an actual count. Beginning April 1, 1919, the figures are estimates based upon reports from a selected list of 5,000 consumers whose stocks in 1918 bore a known relation to the known total stocks.

(b) Subject to revision.

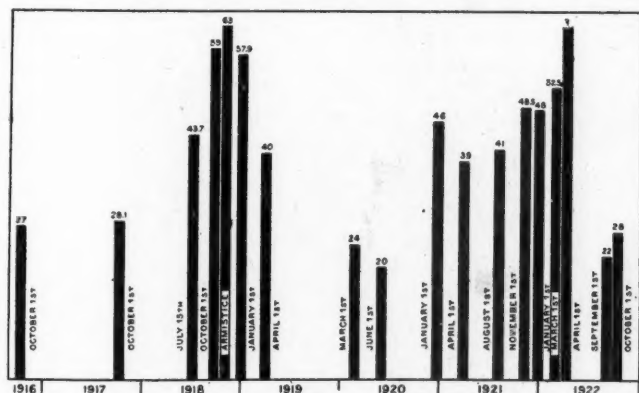


FIG. 1—TOTAL COMMERCIAL STOCKS OF BITUMINOUS COAL, OCT. 1, 1916, TO OCT. 1, 1922

Figures represent million net tons and include coal in hands of railroads, industrial consumers, public utilities and retailers. Coal for steamship fuel, on lake docks, and in transit is not included. Figures for 1922 are subject to revision.

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Analysis of all available data on supply and consumption shows that between March 1 and Sept. 1, the dates for which accurate stock figures are available, the total consumption and exports of American bituminous coal amounted to between 195,000,000 and 200,000,000 tons. This indicates a slight decrease in consumption as compared with the 1921 average, a decrease explained by (1) warmer weather, (2) actual curtailment of operations at some steel works, coke ovens, and industrial plants through scarcity or high price of coal, (3) shrinkage in exports and (4) postponement to autumn and winter of a large part of the movement of domestic coal.

But against this consumption of 195,000,000 tons there was produced or imported only 152,900,000 tons, leaving a deficit of 42,100,000 tons to be drawn from reserves. Of this deficit, about 30,500,000 tons was paid out of consumers' stocks, and the balance—11,600,000 tons—was drawn from the coal in transit.

Some of the deficit in supply during the strike doubtless was met out of the stocks of domestic consumers. The aggregate reserves of the householders, hotels, apartments, small office buildings and other consumers covered by this class runs into the millions of tons. Some of them lay in a

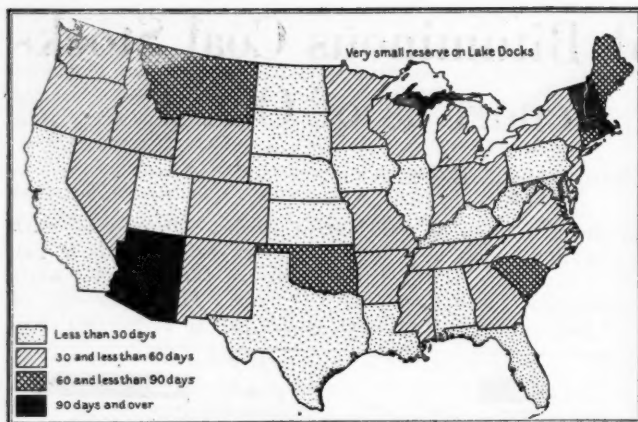


FIG. 3—DAY'S SUPPLY OF SOFT COAL ON HAND AT INDUSTRIAL PLANTS ON OCT. 1, 1922

At the actual rate of consumption in September, stocks at industrial plants other than steel and byproduct coke would last on the average 40 days. Out of 2,107 plants reporting, however, 147 stated that they had to curtail operations in September for lack of coal. At the rate of consumption necessary to avoid curtailing operation, the stock on Oct. 1 was sufficient for only 37 days. How the supply varied from state to state is shown in the diagram.

surplus in anticipation of a shortage, and all of them tend to draw on their reserves and postpone fresh purchases when coal is scarce and dear. This process no doubt facilitates passing a crisis in coal supply, though the extent of the relief may not be stated in tons.

BITUMINOUS COAL IN TRANSIT

"Coal in transit" includes all coal mined and brought to the surface not yet delivered to the retailer or consumer. It resembles oil in a pipe line or material in process in a manufacturing plant; it has inventory value but it cannot be fully realized upon without stopping the process. The quantity in transit has never been measured, but it evidently runs into many million tons. It fluctuates within wide limits and may be drawn upon to meet a deficit in supply. During the 1922 strike there was evidently a net reduction of about 11,600,000 tons in the coal in transit, which went to fill the deficit in supply.

There are several items in the aggregate of coal in transit which will be discussed in turn.

No one knows how much coal is moving by rail or water at any given time. There is some evidence that normally it is something like the total output of the two weeks immediately preceding. If so, the quantity en route on March 1, 1922, would be 20,000,000 tons and the quantity en route on Sept. 1, 1922, 14,600,000 tons. The difference—5,400,000 tons—would have gone to fill the deficit. However far from the mark the factor of two weeks may be, it is clear that here is a source capable of supplying some millions of tons in the event of a stoppage of production. Failure to recognize this fact led to much loose thinking about the wastage of consumers' stocks last summer.

Coal on the Lake Docks is considered as in transit because most of it must be shipped away from the docks before it reaches the consumer. It is the largest factor in the fuel reserve of Wisconsin, Minnesota, the Dakotas and northern Iowa. Between March 1 and Sept. 1, stocks on the docks dropped from 5,160,000 to 292,000 tons. The difference—4,868,000 tons—went to meet current consumption during the period of the strike. In the month of September receipts by the dock operators so far exceeded shipments that their

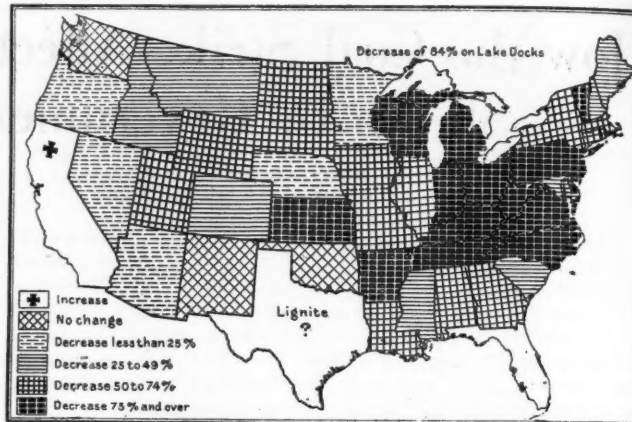


FIG. 4—HOW RETAILERS' STOCKS OF ALL COAL, ANTHRACITE AND BITUMINOUS, ON OCT. 1, 1922, COMPARED WITH THOSE ON NOV. 1, 1921

Stocks of bituminous coal in retail yards on Oct. 1 were about half what they were a year ago. Stocks of anthracite were barely 13 per cent of last year's stocks. The total stocks of retailers—including both hard and soft coal—showed a decrease of 67 per cent as compared with 1921. The map shows that the decrease was small in the Far West and most acute in the territory east of Mississippi River and north Alabama.

stocks increased to 1,581,000 tons on Oct. 1. In spite of the increase the stocks are lower than at the corresponding season of any year covered by the published record. In comparison with 1921, when stocks were unusually heavy, they show a decrease of about 7,000,000 tons. The following statistics are supplied by courtesy of the Northwestern Coal Dock Operators' Association:

BITUMINOUS COAL STOCKS AT UPPER LAKE DOCKS*

(In Net Tons)			
August 1, 1921.....	8,188,639	March 1, 1922.....	5,160,452
November 1, 1921.....	8,824,297	September 1, 1922.....	292,140
January 1, 1922.....	7,150,654	October 1, 1922.....	1,581,391

* These figures are exclusive of coal on private docks of industrial consumers, which coal is included in the consumers' storage.

The quantity of soft coal in cars at tidewater, Lake ports, the New England gateways or other junction points on Oct. 1 was not abnormal.

The strike of 1922 showed that the accumulation of loaded cars unbilled at the mines may at times be a factor of some importance in the above-ground reserve of fuel. When the strike began there were 1,530,000 tons of bituminous coal in unbilled loads; when it ended there were only 20,000 tons. The difference—1,510,000 tons—went into consumption during the stoppage. The following statement of average daily coal loads unconsigned covers all important carriers, and is furnished by courtesy of the American Railway Association:

Week ended	Unbilled Cars of Bituminous	Equivalent In Tons
March 4, 1922.....	14,126	700,000
April 8 (highest).....	30,730	1,530,000
August 19 (lowest).....	412	20,000
September 2.....	1,305	65,000
October 1.....	1,535	77,000

The number of bituminous operators who store their product is very small, but is apparently increasing. A careful inquiry by the Geological Survey last March, before the strike began, showed a total of 753,000 net tons in producers' storage. Of this 502,000 tons was at or near mines in southern Illinois, central Pennsylvania, West Virginia (particularly Logan County), eastern Kentucky, Virginia, Tennessee and Alabama. The remainder—251,000 tons—was stored in yards at intermediate points.

DAYS' SUPPLY OF BITUMINOUS COAL IN HANDS OF VARIOUS CLASSES OF CONSUMERS, JULY 15, 1918, TO OCT. 1, 1922

(Figures represent number of days supply would last at current rate of consumption at time of stock-taking.)

	Nov. 11 1918	Jan. 1 1919	Mar. 1 1920	June 1 1920	Jan. 1 1921	Apr. 1 1921	Aug. 1 1921	Nov. 1 1921	Jan. 1 1922	Mar. 1 1922	Sept. 1 (c) 1922	Oct. 1 (c) 1922
Byproduct coke plants.....	35	32	15a	8a	29	28	31	38	42	39	9	12
Steel plants.....	45	42	9a	14a	42	38	46	46	48	48	10	17
Other industrials.....	71	65	27	24	64	47	56	67	51	56	32	37
Coal gas plants.....	85	81	31	22	55	66	79	87	89	82	34a	38
Electric utilities.....	49	49	21	22	44	48	44	54	51	54	26a	30
Coal dealers, bituminous.....	37	39	13	10	30	26	42	46	33	23	11	19
Railroads.....	31	32	11a	10a	23a	24a	(b)	31a	35a	42a	13	15
Total bituminous.....	45	42	18	15	39a	36a	39a	43a	41a	43a	17	22

(a) Estimated from incomplete data. Subject to important revision. (b) No data. (c) See text for rate of consumption at which these figures are calculated.

Illinois and Indiana Producers Decline Invitation to Cut Domestic Prices

Chicago, Ill., Nov. 6.—The conferences in Chicago last week which Fuel Distributor Conrad Spens held with both Indiana and Illinois coal producers did not produce quite the effect Mr. Spens hoped for. His suggestion that lump prices be dropped from \$5@5.50 down to about \$4 was refused frankly by Indiana men, who declared they could not agree to such a thing for fear Federal Judge Anderson in Indianapolis would swoop down on them again for price fixing. Illinois men made no written answer but are giving Mr. Spens the unmistakable impression that they cannot agree to reduce prices a bit. However the continuance of warm weather which followed the public announcement that Mr. Spens was trying to cut prices so softened the domestic demand that there were signs of shaved quotations in the Midwest markets. The principal southern Illinois producers stuck to their previous lump price of \$5.50, central Illinois did its best to stay above \$4.75 and Indiana coals that had been selling for \$5 and \$5.25 were held right there, with only occasional variations.

The whole Midwest is counting on a cold snap to remedy the present strained situation.

When Mr. Spens suggested that reducing the price from \$5.50 to \$4 would be a satisfactory thing for the producers of the Midwest region to do, the general reply was that since mine costs had mounted 50 per cent or more with the 50 per cent or greater drop in car supply, domestic sizes were the only salvation of the coal business. If it costs almost \$4 today to produce a ton of coal in Illinois, and more than half the coal produced is screenings and must be sold at a considerable loss—say at \$2@2.25—it was advanced to Mr. Spens as obvious that a maximum of \$4 could not be fixed for lump or the business of coal mining would collapse amid a large puff of bug dust.

When the point was raised that West Virginia had cut the price from \$7.50 to \$6, thus apparently arguing that Western mining companies should effect a similar reduction, there was no hesitancy in asking if Illinois and Indiana are now to be penalized for not setting their prices up to \$7.50 at the end of the strike. A hint that Mr. Spens has power to shut off car supply to recalcitrant Western mines and can permit amenable West Virginia mines to have enough cars to flood the West with competitive coal did not scare the Westerners. The attitude of many of them was: "We're ready to do battle in the courts any time cars are shut off, and anyway West Virginia isn't in position to flood the West with coal even if it got all the cars in the United States." Mr. Spens could not set a minimum price, so the operators would not set a maximum.

While the conferences at Chicago bred little ill feeling, thanks to Mr. Spens' tact and good judgment, they did not make much progress and it is understood among Western coal men that the Fuel Distributor is disappointed. The feeling among them is that a good stiff cold snap would go a long way toward relieving the tension.

Expert observers feel that Mr. Spens' activity at Chicago will have a wholesome effect. It at least gave the government a chance to indicate that it can take a hand if prices do any ground and lofty tumbling, and this is expected to have a restraining influence even if a cold snap comes down and sets the domestic market all agog.

Washington, D. C., Nov. 3.—Results of a conference between Federal Fuel Distributor C. E. Spens and a delegation of coal operators from the northern West Virginia bituminous field, at which a reduction of \$1.25 per ton in the maximum price of domestic coals mined in this field was arranged, are given in the following statement, issued today by Mr. Spens:

"A conference was held in Washington, Nov. 2, between the coal operators of the northern West Virginia field, which includes the Fairmont district, and the Federal Fuel Distributor, to discuss the question of maximum prices f.o.b. at mines on prepared sizes of bituminous coal for household purposes.

"The operators signified their willingness not to exceed

a maximum f.o.b. price at mines of \$4.50 per ton. Previous prices having ranged as high as \$5.75 per ton, the new basis, therefore, constitutes a reduction in the previous maximum figure of \$1.25 per ton. This basis was voluntarily established by the operators in the northern West Virginia field in recognition of the present emergency and to assist the Federal Fuel Distributor in the accomplishment of the purposes of the act establishing this office."

Spens Urges Anthracite Producers to Help In Elimination of Speculation

Producers of anthracite have been requested by Federal Fuel Distributor C. E. Spens to market their coal only through legitimate trade channels, in order to eliminate intermediate speculation, which has tended to increase unduly the price of hard coal in some sections. Mr. Spens' communication, addressed to all hard-coal operators, under date of Nov. 4, is as follows:

Complaints are reaching the Federal Fuel Distributor from a great many sources that higher f.o.b. mine prices than those already agreed upon with the Fair Practices Committee of Pennsylvania as basic mine prices are being asked on anthracite coal, and investigation has developed that this is due to a great extent to the employment of too many intermediate channels between the producer and the consumer.

This condition of affairs can largely be corrected by the producers themselves, by confining their sales to legitimate wholesalers and to legitimate retailers who deal directly with the ultimate consumer.

In view of the current "normal" level of anthracite prices and the intense demand due to anticipated reduced production, "intermediate speculation" savors of cruelty, and the Federal Fuel Distributor invites the co-operation of all producers, to the end that the activities of this parasite on normal exchange may be entirely eliminated or at least be reduced to a minimum.

The continuance of such practices reflects on the entire anthracite industry, which is most unfortunate, since so large a proportion of the representation of that industry is co-operating with all interests in a splendid manner in coping with the present emergency.

Blast Entombs 90 Miners at Spangler, Pa.

An explosion in the Reilly Mine of the Reilly Coal Co., at Spangler, Pa., early Monday morning, Nov. 6, entombed between ninety and ninety-five miners who had gone to their work shortly before. The extent of the explosion has not yet been determined, but at the office of the company, it was said its effect was "pretty bad."

The mine rescue section of the Bureau of Mines at Pittsburgh ordered a rescue car to proceed to the mine without delay. Another car, which is now in New York State, also was ordered to Spangler.

The Reilly Mine is a shaft some 200 feet. deep, and normally employs about 120 men. It is owned by the Joseph H. Reilly Coal Co., of Philadelphia, and produces about 125,000 tons a year.

Bituminous Operators About to Draft Suggestions to Coal Commission

A draft of the suggestions which the National Coal Association will make to the President's coal commission as to the scope of its work will be considered by the committee headed by J. C. Brydon at a meeting to be held in Washington, Nov. 9. While no information is available as to the specific recommendations which the operators' committee will make, it is known that they will ask only for the consideration of the broad questions involved rather than suggesting the investigation of detailed matters, which obviously would consume more time than is at the disposal of the commission. The members of Mr. Brydon's committee are J. G. Bradley, L. W. Guthrie, Michael Gallagher, H. N. Taylor, George Herrington and E. C. Mahan.

The anthracite operators have as yet made no formal reply to the request of the coal commission for recommendations, although it is unofficially reported that they too are considering the draft of a letter to the commission on this subject.

Federal Income Tax Returns in Relation to Investigation of Operators' Profits

[The injunction in the law creating the Hammond Coal Commission that profits of the coal operators for the past ten years be investigated has caused many to turn to the records of the Income Tax Bureau of the Treasury at Washington in the belief that here will be found the data desired and required. The following is a brief summary of the federal tax laws of the past ten years as they may have a bearing on the value of these figures, as far as comparability is concerned.—EDITOR.]

With respect to gross income the tax blank for 1913 permitted the profit from the sale of capital assets, if acquired prior to Jan. 1, 1909, to be prorated over the period from date of purchase, levying a tax in the year sold, on the amount accrued since 1909. Subsequent laws fixed the profit as the difference between the "fair market value" at March 1, 1913, and the selling price, if the property was acquired prior to that date. The 1921 law places a maximum tax of 12½ per cent on capital gains.

Under the 1913 tax law dividends received were taxable at the rate in effect on other income. The 1916 law taxed dividends in like manner, when received or ordered to be made. The 1916 and the 1917 laws both specifically attempted to tax stock dividends, if paid out of surplus accrued subsequently to 1913. The 1917 law taxed them at the rates of tax in force in the period when earned, or in lieu thereof at the rate of 2 per cent. Under the present law the dividends received by corporations are not subject to income tax.

DEDUCTIONS ALLOWED IN 1913 TO 1916

The tax blanks for the years 1913 to 1916 provided for deductions of "only the ordinary and necessary expenses paid within the year in the maintenance and operation of the business and properties of the corporation," and went on to specify that "all expenses of material, labor, fuel, and other items entering into the cost of goods purchased, sold, or inventoried are deductible under the head of expense." The 1917 form provided, as did the others, that expenditures for incidental repairs which do not add to the value or appreciably prolong the life of property are deductible as expenses. The 1917 law uses the words "all the ordinary and necessary expenses paid" within the year.

The 1918 law reads "paid or incurred." With the issuance of Regulation 45 covering the law of 1918, the Income Tax Bureau gave recognition to the peculiar conditions surrounding the mining industry, and in Article 222 of the Regulation, set up the specific test that in a developed mine, unless the minor item of plant and equipment purchased or installed would increase production, its cost might be treated as an item of expense. Specific examples were cited as "mules, motors, mine cars, trackage, cables, trolley wire, fans, small tools, etc., necessary to maintain the normal output because of increased length of haul or depth of workings consequent on the extraction of mineral."

This regulation was issued by the Internal Revenue Bureau at the urgent request of the mining industry. It served as a guide for the field examiners and auditors of the department, and promoted generally the accounting methods which had been in vogue with conservatively operated companies in preceding years. It also gave recognition to the basic difference between the wasting industries and others, as manufacturing and railroad operation. In the examination of the 1917 returns by the field men of the Internal Revenue Bureau innumerable controversies had arisen with the taxpayer as to the treatment of the class of articles enumerated in Article 222, the agent of the government insisting that they be capitalized, while the taxpayer insisted that proper accounting required them to be treated as items of expense. This regulation settled the controversy as far as 1918 and succeeding years are concerned, for while the wording of the regulation was afterward revised, the principle established still holds. Since the 1917 and the 1918 laws are practically identical as to what constitutes allowable expenses, it naturally follows that the taxpayer is entitled to the same allowances for 1917 as for 1918.

All of the revenue laws have made allowances for losses actually sustained and charged off, but the law of 1921 allows "at the discretion of the commissioner, a reasonable addition to the reserve for bad debts."

The 1913, 1916, 1917, 1918 and 1921 tax laws all provide for allowances which fairly measure the loss during the year of physical property by reason of exhaustion, wear and tear—that is to say, depreciation. The earlier laws specified that it should be based on cost. With the issuance of Treasury decision 2,754, on Aug. 23, 1918, recognition is given to the principle that depreciation on property purchased prior to March 1, 1913, might be figured on the fair market value at that date instead of on the basis of cost.

With the issuance of the regulations for the year 1918, recognition also was given to the method used by many mining companies of calculating depreciation on the basis of the tonnage exhausted, at a rate per ton obtained by dividing the capital sum invested in plant and equipment by the total number of tons recoverable from the acreage assigned to a given mine, thus giving a unit value per ton as a measure of depreciation. The option also was given to the taxpayer to add the values of plant and equipment to the value of the mineral and development and to make a composite deduction for depreciation and depletion.

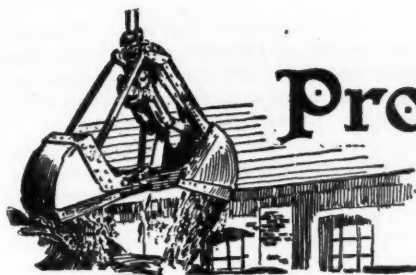
ALLOWANCE FOR DEPRECIATION ALLOWED IN 1916 LAW

The 1909 law did not allow deductions for depletion. With the passage of the 1913 law recognition was given in part only to the loss to the mining company by reason of the mining out of the mineral, and deduction for depletion was allowed "not to exceed 5 per cent of the gross value at the mine of the output for the year." With the 1916 law full recognition is given to the right to depletion allowances based on cost or the fair market value at March 1, 1913. It is a fact that because of the low tax rate under the 1916 law and the trouble and expense incident thereto, few coal operators took advantage of the privilege of placing a value on their mineral at 1913 and continued to make deductions on the basis of cost. With the high rates under the Income and Excess Profits Tax laws of 1917 an additional number of taxpayers accepted the opportunity to revalue, but because of the difficulty of finding a basis on which real values could be proved many have not yet obtained the values to which they may be entitled. In the period preceding 1913 few coal properties changed hands, and not until the acceptance by the Internal Revenue Bureau of the principle of fixing values on the principle of the "present value of eventual earnings" has it been possible to gain much from this provision.

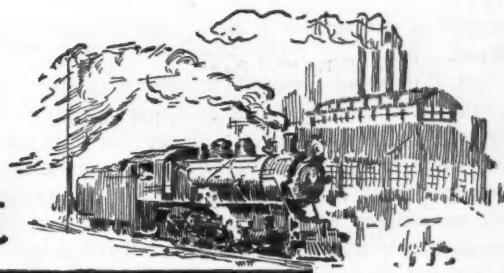
There seems to have been no doubt as to the right of the taxpayer to amortize the cost of obtaining a lease under the laws passed prior to 1918, but not until the passage of that act has he had the undisputed privilege of valuing a leasehold at March 1, 1913, for the purpose of depletion. At the present time comparatively few coal operators in some states have such values to the satisfaction of the Commissioner of Internal Revenue and have therefore not gotten the value of this deduction, although such values may be very substantial and much in excess of the lessor's interest.

Prior to 1918 interest deductions for the purpose of the income tax were limited to the amount actually paid on bonded and other indebtedness not in excess of the paid-up capital stock, plus one-half of the interest-bearing indebtedness outstanding at the close of the fiscal year. This restriction has been removed. With the 1918 law all interest is deductible, except that to carry obligations on certain tax-free obligations of the United States. It is also permissible to make deductions on the basis of interest accrued, which under former laws was not permitted.

Under the laws prior to 1917 federal income taxes were an allowable deduction in making a return to the Internal Revenue Bureau. The deductions were required to be on the basis of actual payments. With the 1917 law, however, the federal income and excess profits taxes were no longer an allowable deduction, but with this year permission was given to the taxpayer to accrue other taxes upon his books as a basis of deductions.



Production and the Market



Weekly Review

Despite steadily increasing production the spot market indicates signs of firmness. Current offerings are being absorbed quietly and as production is now above current consumption it is apparent that the general run of consumers are accumulating reserves. Because of contract and railroad requirements the meager car supply permits little increase in the volume of spot coal and the gradual re-entry of buyers has further checked the descent of prices.

Coal Age Index of spot bituminous prices was 344 on Nov. 6, as compared with 346 on the previous Monday. This corresponds to an average mine price of \$4.16, a decline of only 3c. in the week as compared with a drop of 7c. in the previous week and 19c. in the seven-day period just preceding. High-grade coals are scarce and prices are firmly held.

PRESENT SITUATION A REVERSAL OF 1917 AND 1920

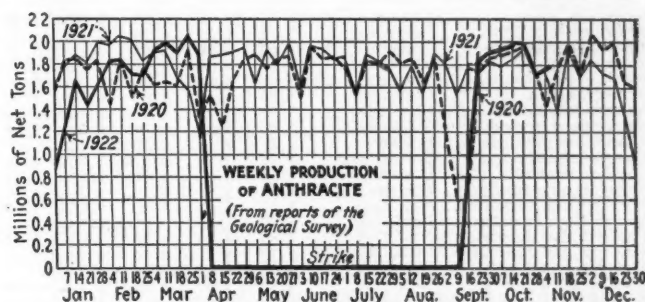
Market conditions are the easiest in the North Atlantic and New England section. The situation today is just the reverse of 1917 and of 1920, when Eastern industrial activity taxed rail facilities to the utmost to provide much-needed fuel. Eastern coal stocks are not heavy but there has been such an influx of British fuel and the coastwise trade has been so active that this market is comparatively weak.

Heavy Lake shipments and a healthy Western demand have resulted in congestion at the various gateways. An embargo on the westward movement of C. & O. coals, which lasted for a week, failed to clear this congestion, but instead choked mine sidings with the current week's loads which could not find a ready market in the East. Movement through the Cincinnati gateway is now stupendous, but the three carriers are hard pushed for cars because of the slow return of empties.

Domestic demand is still the most attractive for

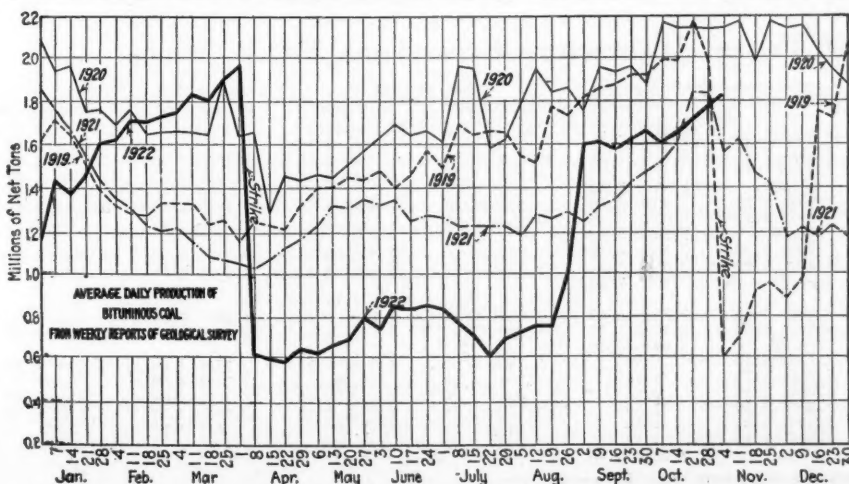
Middle Western fields. So much prepared coal is being made that the resultant sizes are a drug on the market. Ohio's law fixing a maximum price on coals mined and sold within that state caused such a heavy movement to other markets that the fuel authorities called a conference of producers last week to remedy the situation. Although no formal announcement was made following the meeting it is understood that the operators promised their co-operation in providing tonnage within the state, thereby avoiding the necessity of longer hauls from other producing fields.

The Northwestern territory will need approximately 3,000,000 additional tons of Lake coal before the close of



navigation. With dumpings at the lower ports being maintained at their present rate it is expected that this program will be accomplished. All-rail coal from Indiana, Illinois, etc., will of course be drawn on more heavily for this section during the winter than in normal times. Federal Fuel Distributor Spens believes that by Nov. 15 the peak of the autumn movement of grain and other commodities will have passed, thus releasing more transportation for coal.

Many buyers are relying on the close of the Lake season to release a flood of coal and weaken the price. It is not unlikely, however, that their entry into the spot



Estimates of Production

(Net Tons)

BITUMINOUS

	1921	1922
Oct. 14 (b).....	9,711,000	10,110,000
Oct. 21 (b).....	11,049,000	10,378,000
Oct. 28 (a).....	10,946,000	10,681,000
Daily average.....	1,826,000	1,780,000
Calendar year.....	336,290,000	311,921,000
Daily av. cal. year.....	1,324,000	1,224,000

ANTHRACITE

Oct. 14 (b).....	1,813,000	2,075,000
Oct. 21 (b).....	1,910,000	2,003,000
Oct. 28 (a).....	1,751,000	1,773,000
Calendar year.....	76,840,000	34,988,000

COKE

Oct. 21 (b).....	102,000	210,000
Oct. 28 (a).....	102,000	236,000
Calendar year.....	4,496,000	5,590,000

(a) Subject to revision. (b) Revised from last report.

market at one time will offset any topheavy market condition.

Retail demand for anthracite is pressing. Dealers are behind in their deliveries and are urging consumers to accept substitute fuels, at least for immediate needs. The Lake program is being given preference, but this tonnage must be supplemented by a considerable all-rail movement to safeguard the Northwest's requirements this winter. Dumpings at Buffalo last week were 94,200 net tons, as compared with 120,500 tons in the preceding week. High independent quotations are now rarely heard, as dealers hesitate to pass on excessive premiums to their customers.

The steam sizes of anthracite are still heavy, although buckwheat is better taken on account of the shortage in domestic grades. Rice and barley are still soft and producers, wherever possible, are running these coals to storage.

BITUMINOUS

"Preliminary returns on coal production in the week ended Nov. 4 indicate a total of 12,500,000 net tons of which about 10,700,000 tons is bituminous coal and 1,800,000

tons is anthracite," says the Geological Survey. "Revised estimates for the fourth week of October show 10,681,000 tons of bituminous coal and 1,773,000 tons of anthracite. Thus a slight increase in the total coal raised is shown for the present week as compared with the week before.

"The increased rate of production during the past three weeks is due principally to improvement in transportation, which is reflected in the reports on operating conditions summarized in this review and also by revised figures of loading for the week Oct. 23-28, which show that following the Monday-to-Tuesday drop the rate of loading declined less from Tuesday to Friday than in earlier weeks."

Despite reassuring statements from the Department of Commerce and from the Federal Fuel Distributor, representatives of the public utilities contend that the coal situation, so far as their plants are concerned, is getting worse instead of better. The figures of the American Railroad Association also are attacked as being inaccurate. The belief held in public-utility circles is that there are duplications in the figures as to car loadings. Since the utilities are hampered by fixed incomes in bidding for coal against manufacturers, they believe nothing short of the re-establishment of priority No. 2 will enable them to build up the reserves necessary to carry them through the winter.

Eastern and Middle Western utilities have been asked to await the closing of the Lakes before attempting to build

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

	Market Quoted	Oct. 9, 1922	Oct. 23, 1922	Oct. 30, 1922	Nov. 6, 1922†		Market Quoted	Oct. 9, 1922	Oct. 23, 1922	Oct. 30, 1922	Nov. 6, 1922†
Low Volatile, Eastern						Pitts. No. 8 mine run....	Cleveland....	\$4.40	\$3.56	\$3.56	\$3.56
Smokeless lump.....	Columbus....	\$6.75	\$7.10	\$6.60	\$6.50@7.00	Pitts. No. 8 screenings....	Cleveland....	4.05	3.25	3.31	3.31
Smokeless mine run.....	Columbus....	5.75	6.25	6.25	5.50@6.60	Midwest					
Smokeless screenings.....	Columbus....	5.60	6.00	5.85	5.25@5.75	Franklin, Ill. lump.....	Chicago....	5.40	5.30	5.35	5.25@5.50
Smokeless lump.....	Chicago....	6.25	6.30	6.35	5.75@6.25	Franklin, Ill. mine run....	Chicago....	4.50	4.50	4.10	4.00@4.25
Smokeless mine run.....	Chicago....	6.60	6.00	5.75	5.60@5.75	Franklin, Ill. screenings....	Chicago....	3.25	3.25	2.60	2.25@3.00
Smokeless lump.....	Cincinnati....	6.30	6.30	7.00	6.00@8.00	Central, Ill. lump.....	Chicago....	5.10	5.10	5.00	4.50@4.90
Smokeless mine run.....	Cincinnati....	5.95	5.55	6.10	6.00@6.25	Central, Ill. mine run....	Chicago....	3.60	3.60	3.10	3.00@3.25
Smokeless screenings.....	Cincinnati....	5.80	5.30	6.10	6.00@6.50	Central, Ill. screenings....	Chicago....	2.80	2.00	1.85	1.75@2.00
*Smokeless mine run....	Boston....	7.25	7.10	7.10	6.75@7.00	Ind. 4th Vein lump.....	Chicago....	5.10	5.10	5.10	5.00@5.25
Clearfield mine run....	Boston....	4.25	4.75	3.50	3.00@4.75	Ind. 4th Vein mine run....	Chicago....	4.60	4.35	3.85	3.75@4.00
Cambria mine run....	Boston....	4.50	4.25	4.10	3.50@4.75	Ind. 4th Vein screenings....	Chicago....	3.80	2.75	2.35	2.25@2.50
Somerset mine run....	Boston....	4.30	3.95	3.75	3.25@4.00	Ind. 5th Vein lump.....	Chicago....	5.10	4.75	4.75	4.50@5.00
Pool 1 (Navy Standard)....	New York....	5.25	5.00	4.85	4.75@5.00	Ind. 5th Vein mine run....	Chicago....	4.35	3.75	3.65	3.50@3.75
Pool 1 (Navy Standard)....	Baltimore....	5.50	5.00	4.85	4.25@4.75	Ind. 5th Vein screenings....	Chicago....	3.35	2.75	2.10	2.00@2.25
Pool 9 (Super. Low Vol.)....	New York....	4.65	4.25	4.25	4.00@4.25	Standard lump.....	St. Louis....	4.25	4.35	4.25	3.50@4.60
Pool 9 (Super. Low Vol.)....	Philadelphia....	4.35	4.35	4.30	4.00@4.65	Standard mine run....	St. Louis....	3.35	2.75	2.60	2.50@2.75
Pool 9 (Super. Low Vol.)....	Baltimore....	4.85	4.35	4.00	4.00	Standard screenings....	St. Louis....	2.10	2.10	2.00	1.25@1.60
Pool 10 (H.Gr. Low Vol.)....	New York....	4.10	3.85	3.50	3.25@3.75	West Ky. lump.....	Louisville....	5.25	5.00	5.00	4.50@5.25
Pool 10 (H.Gr. Low Vol.)....	Philadelphia....	3.85	3.60	3.50	3.30@3.70	West Ky. mine run....	Louisville....	3.60	2.45	2.80	2.25@2.75
Pool 10 (H.Gr. Low Vol.)....	Baltimore....	4.25	3.90	3.35	3.50@3.75	West Ky. screenings....	Louisville....	3.25	2.10	2.00	1.50@2.25
Pool 11 (Low Vol.)....	New York....	3.60	3.30	3.05	2.75@3.25	West Ky. lump.....	Chicago....	4.50	4.10	4.10	4.00@4.25
Pool 11 (Low Vol.)....	Philadelphia....	3.35	3.25	3.15	2.90@3.40	West Ky. mine run....	Chicago....	4.10	3.25	3.10	2.75@3.50
Pool 11 (Low Vol.)....	Baltimore....	4.05	3.55	3.25	3.00@3.30						
High-Volatile, Eastern						South and Southwest					
Pool 54-64 (Gas and St.)....	New York....	4.05	3.50	3.30	3.25@3.50	Big Seam lump.....	Birmingham....	3.45	3.95	3.95	3.45@4.45
Pool 54-64 (Gas and St.)....	Philadelphia....	4.00	3.75	3.50	3.25@3.75	Big Seam mine run....	Birmingham....	2.60	2.60	2.60	2.25@2.60
Pool 54-64 (Gas and St.)....	Baltimore....	4.05	3.60	3.35	3.25@3.50	Big Seam (washed)....	Birmingham....	3.10	2.75	2.75	2.50@2.75
Pittsburgh sc'd. Gas....	Pittsburgh....	5.40	5.05	5.00	4.50	S. E. Ky. lump.....	Chicago....	6.25	5.50	5.50	5.00@6.00
Pittsburgh mine run (St.)....	Pittsburgh....	3.60	3.25	3.25	3.25@3.50	S. E. Ky. mine run....	Chicago....	4.75	4.25	4.25	4.00@4.50
Pittsburgh slack (Gas)....	Pittsburgh....	4.00	3.60	3.60	3.50@3.75	S. E. Ky. lump.....	Louisville....	7.00	6.50	6.75	6.50@7.00
Kanawha lump.....	Columbus....	6.50	6.25	6.25	6.00@6.50	S. E. Ky. mine run....	Louisville....	4.75	3.85	4.00	4.00@4.50
Kanawha mine run....	Columbus....	4.60	4.50	4.75	4.25@4.75	S. E. Ky. screenings....	Louisville....	4.10	4.10	4.10	4.00@4.50
Kanawha screenings....	Columbus....	4.50	3.75	4.10	4.00@4.25	S. E. Ky. lump.....	Cincinnati....	5.60	6.75	5.85	6.00@6.50
W. Va. mine run lump....	Cincinnati....	6.50	6.10	6.00	6.00	S. E. Ky. mine run....	Cincinnati....	4.75	3.85	4.25	3.75@4.25
W. Va. gas mine run....	Cincinnati....	4.35	4.35	4.35	4.25@4.50	S. E. Ky. screenings....	Cincinnati....	4.00	3.60	4.00	3.50@4.25
W. Va. steam mine run....	Cincinnati....	3.35	4.10	3.75	3.75@4.25	Kansas lump.....	Kansas City....	5.50	5.75	5.75	5.50@6.00
W. Va. screenings....	Cincinnati....	4.10	3.65	4.00	3.75@4.25	Kansas mine run....	Kansas City....	4.25	3.75	3.75	3.50@4.00
Hocking lump.....	Columbus....	5.25	5.25	4.50	5.00@6.00	Kansas screenings....	Kansas City....	2.60	2.50	2.50	2.50
Hocking mine run....	Columbus....	3.50	3.50	3.60	3.50@3.75						
Hocking screenings....	Columbus....	3.50	3.25	3.10	2.85@3.25						
Pitts. No. 8 lump.....	Cleveland....	4.85	3.81	3.81	3.81						

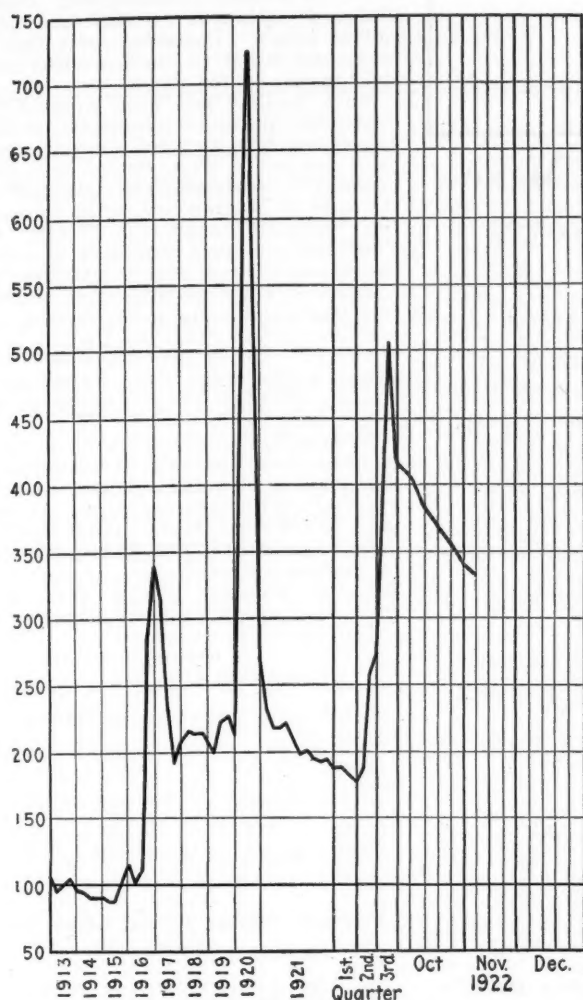
* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Latest Independent	Pre-Strike Company	Oct. 30, 1922 Independent	Oct. 30, 1922 Company	Nov. 6, 1922† Independent	Nov. 6, 1922† Company
Broken.....	New York....	\$2.34		\$7.60@7.75		\$7.75@8.15		\$7.75@8.15
Broken.....	Philadelphia....	2.39	\$7.00@7.50	7.75@7.85		7.90@8.10		7.90@8.10
Egg.....	New York....	2.34	7.60@7.75	7.60@7.75	\$9.25@10.50	7.75@8.35	9.25@10.50	7.75@8.35
Egg.....	Philadelphia....	2.39	7.25@7.75	7.75	9.25@9.75	8.10@8.35	9.25@9.75	8.10@8.35
Egg.....	Chicago....	5.09	7.50*	6.90@7.40*				
Stove.....	New York....	2.34	7.90@8.20	7.90@8.10	9.25@10.50	8.00@8.35	9.25@10.50	8.00@8.35
Stove.....	Philadelphia....	2.39	7.85@8.10	8.05@8.25	9.25@9.75	8.15@8.35	9.25@9.75	8.15@8.35
Stove.....	Chicago....	5.09	7.75	7.20@7.60*				
Chestnut.....	New York....	2.34	7.90@8.20	7.90@8.10	9.25@10.50	8.00@8.35	9.25@10.50	8.00@8.35
Chestnut.....	Philadelphia....	2.39	7.85@8.10	8.05@8.25	9.25@9.75	8.15@8.35	9.25@9.75	8.15@8.35
Chestnut.....	Chicago....	5.09	7.75	7.20@7.60				
Range.....	New York....	2.34				8.15		8.15
Pea.....	New York....	2.22	5.00@5.75	5.75@6.45	7.00@7.50	6.15@6.20	7.00@8.00	6.15@6.20
Pea.....	Philadelphia....	2.14	5.50@6.00	6.10@6.25	7.00@7.25	6.15@6.20	7.00@7.25	6.15@6.20
Pea.....	Chicago....	4.79	6.00	5.60@6.10				
Buckwheat No. 1.....	New York....	2.22	2.75@3.50	3.50	2.25@4.00	4.00@4.25	2.25@4.00	4.00@4.25
Buckwheat No. 1.....	Philadelphia....	2.14	2.75@3.25	3.50	3.25@4.00	4.00	3.25@4.00	4.00
Rice.....	New York....	2.22	2.00@2.50	2.50	2.75@3.00	2.75@3.00	1.45@3.00	2.75@3.00
Rice.....	Philadelphia....	2.14	2.00@2.50	2.50	2.25@2.75	2.75@3.00	2.00@2.75	2.75@3.00
Barley.....	New York....	2.22	1.50@1.85	1.50	1.00@1.75	2.00	1.75@1.75	2.00
Barley.....	Philadelphia....	2.14	1.50@1.75	1.50	1.00@2.00	2.00	1.00@1.75	2.00
Barley.....	New York....	2.22		2.00@2.50		2.25		2.25

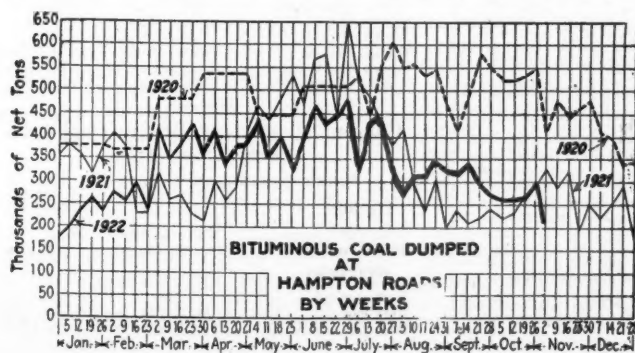
* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type, declines in italics.



Coal Age, Index 344, Week of Nov. 6, 1922. Average spot price for same period, \$4.16. This diagram shows the relative, not the actual price on fourteen coals, representative of nearly 90 per cent of the bituminous output of the U. S. weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board.

up storage. They contend, however, that the closing of the Lakes means that freezing weather has arrived and a tonnage far in excess of that moving up the Lakes will have to be delivered to domestic consumers. Moreover, the advent of cold weather means that the railroads are 20 per cent less efficient.

The point on which the public utilities are placing most emphasis is that deliveries on their contracts frequently are as low as 15 per cent, while in only rare instances are they exceeding 50 per cent. The high prices being paid for coal in the Middle West have unbalanced the transportation movement from Eastern mines and this situation is further



How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V. of the Weekly Report.

	Six Months July to Dec., 1921	Jan. 1 to Apr. 1, 1922 Inclusive	Sept. 5 to Oct. 21, 1922 Inclusive	Week Ended Oct. 21
U. S. Total.....	45.6	55.7		
Alabama.....	63.5	64.6	(a)	(a)
Somerset County.....	55.5	74.9	36.4	43.3
Panhandle, W. Va.....	55.3	51.3	58.4	52.1
Westmoreland.....	54.9	58.8	69.5	49.9
Virginia.....	54.8	59.9	58.0	59.9
Harlan.....	53.3	54.8	21.7	23.9
Hazard.....	51.7	58.4	14.4	19.4
Pocahontas.....	49.8	60.0	37.6	41.8
Tug River.....	48.1	63.7	32.3	27.2
Logan.....	47.6	61.1	24.3	25.6
Cumberland-Piedmont.....	46.6	50.6	33.6	42.5
Winding Gulf.....	45.7	64.3	30.4	30.8
Kenova-Thacker.....	38.2	54.3	39.4	34.9
N. E. Kentucky.....	32.9	47.7	27.1	27.8
New River.....	24.3	37.9	30.7	31.5
Oklahoma.....	63.9	59.6	63.4	63.8
Iowa.....	57.4	78.4	79.8	78.9
Ohio, Eastern.....	52.6	46.6	45.3	36.4
Missouri.....	50.7	66.8	69.8	81.7
Illinois.....	44.8	54.5	48.4	51.8
Kansas.....	42.0	54.9	60.6	49.8
Indiana.....	41.4	53.8	47.5	53.5
Pittsburgh†.....	41.2	39.8	48.5	37.9
Central Pennsylvania.....	39.1	50.2	62.5	60.2
Fairmont.....	35.3	44.0	42.0	35.2
Western Kentucky.....	32.5	37.7	30.5	30.5
Pittsburgh*.....	30.4	31.9	62.2	66.8
Kanawha.....	26.0	13.0	15.2	21.6
Ohio, Southern.....	22.9	24.3	38.0	31.1

* Rail and river mines combined.

† Rail mines.

(a) No report.

Car Loadings, Surpluses and Shortages

	Cars Loaded			
	All Cars	Coal Cars		
Week ended Oct. 21, 1922.....	1,003,759	196,771		
Previous week.....	983,470	196,926		
Same week in 1921.....	964,811	215,495		
	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
Oct. 23, 1922.....	4,409	1,776	166,349	46,575
Oct. 15, 1922.....	4,275	1,588	156,309	44,984
Same date in 1921.....	101,000	50,000		

curtailing the chances of the public utilities to obtain reserves sufficient to insure the proper margin of safety.

All-rail shipments to New England declined to 2,880 cars during the week ended Oct. 28 as compared with 3,092 cars in the preceding week. Strenuous efforts are necessary to place this tonnage as competition from the coastwise trade is very keen.

Hampton Roads dumpings were 214,874 net tons during the week ended Nov. 2, the lowest since early last January and 80,000 tons less than in the previous week. Only the C. & O. piers registered any gain in dumpings. Tidewater prices are weak but the meager offerings have prevented much of a drop.

During October 2,688,924 net tons of soft coal and 267,744 tons of anthracite passed through the "Soo." Dock supplies of bituminous are piling up as consumers are slow to place orders. The southern end of the dock territory is being canvassed actively by all-rail shippers who seek an immediate outlet for their topheavy steam sizes, produced in an effort to meet the domestic demand.

ANTHRACITE

Production of anthracite was reduced by the observance of holidays during the last two weeks. The output for the week ended Oct. 28, was 1,773,000 tons and for last week approximately 1,800,000 net tons.

Domestic demand is pressing and dealers make only partial deliveries, urging consumers to use substitute fuels wherever possible. Every effort is being made to push the Lake program but it is apparent that considerable all-rail tonnage will have to be shipped to eke out the Northwest's winter requirements.

COKE

Production of beehive coke was 236,000 net tons during the week ended Oct. 28 as compared with 210,000 tons in the preceding week. The principal increase was in the Connellsville region. That market has retained its strength and some last-quarter business has been done. Consumers appear satisfied with the recent decline in price and more of them are covering for the balance of the year.

Foreign Market And Export News

British Prices Gain Strength, Output Makes New Record; French Market Improves

Heavy production of British coal has followed a more satisfactory market. The output during the week ended Oct. 21 was 5,355,000 gross tons, according to a cable to *Coal Age*. This is the heaviest week's production since 1913 and is 100,000 tons in excess of the preceding week's output. Prices are strong on all good grades.

The South Wales Miners' Federation has decided to withdraw its notice of a general strike, and work in the mines will be continued. It was found that only a small percentage of the miners were obeying the call, which was issued to force complete unionization of the mine fields.

In spite of the threatened labor trouble in Wales the pits there continue to be well booked up. The United States orders are naturally still falling off but these are compensated for by increased demands from South America and Europe, while Canada's inquiries are on the increase. The coal industry in northern England is stronger. In most cases the pits are booked up over November, and in some instances in early December. The result of these movements has been a further advance in prices which has led Continental customers to hold off awhile. In general it may be said that the Northumberland and Durham markets are firmly established up to the new year.

The Scottish trade with Europe continues to be good and it is thought that a large share of the contracts for Swedish State railway coal will be taken in Fife. Industrial and domestic demand is poor.

French Collieries Flooded with Domestic Orders

Nord and Pas-de-Calais collieries remain in a favorable position. Industrial demand is, on the whole, satisfactory. Collieries are flooded with orders for domestic coals—owing partly to the failure of Belgium to provide the market with adequate supplies.

The situation of the Loire and Center fields is quite good for domestic and is improving for industrial coals. Production in the Sarre and Lorraine fields

is increasing, with a comparatively easy outlet. The output of the Sarre mines in August was 1,019,000 metric tons, with stocks at the end of that month amounting to 545,000 tons. In August, 187,000 tons were sent to Germany.

The French Higher Railway Board has decided that in the general revision, railway rates will have to keep within a maximum limit of three times the pre-war transportation costs. At the same time it fixed May 1, 1923, as the latest date by which the revision should be completed. Coal rates will, of course, be included in the general revision of the schedule.

Hampton Roads Pier Situation

	Week Ended	
	Oct. 26	Nov. 2
N. & W. Piers, Lamberts Point:		
Cars on hand.....	937	571
Tons on hand.....	60,322	32,993
Tons dumped.....	96,335	66,117
Tonnage waiting.....	13,875	28,950
Virginian Ry. Piers, Sewalls Point:		
Cars on hand.....	725	723
Tons on hand.....	46,650	43,250
Tons dumped.....	110,823	84,748
Tonnage waiting.....	7,149	26,443
C. & O. Piers, Newport News:		
Cars on hand.....	348	422
Tons on hand.....	17,400	21,100
Tons dumped.....	54,057	40,887
Tonnage waiting.....	250	1,470

Hampton Roads Supplies Dwindle

Short supplies, with extremely dull business, featured the week at Hampton Roads. Stocks were dwindling to the lowest point in the year while dumpings were also at a low ebb.

The low supply narrowed the price range and put temporary strength in quotation. The tonnage awaiting cargo neared the level of stocks at the piers.

The steamship *Arcadia* cleared for Curacao during the week with 3,965 tons cargo.

Coal Paragraphs from Foreign Lands

GERMANY—Ruhr production was 1,989,000 metric tons during the week ended Oct. 21, according to a cable to *Coal Age*, as compared with 1,972,000 tons in the previous week.

BELGIUM—The coal market is still

very firm. Consignments are in full swing for domestic consumption. Sized kinds and anthracite are high and difficult to obtain. Industrial sorts find a ready sale either to the home iron and steel works or for export.

Much feeling has been aroused in industrial circles by a decision of the Joint Committee to raise miners' wages by 8 per cent. The owners have announced a corresponding advance in the price of Belgian coal, while German fuel supplied under the Treaty of Versailles has been increased in price by about 10 francs for all qualities.

INDIA—On the Bombay coal market few transactions are being carried out and the market does not show a firm tendency. Stocks are sufficient. The prices are: Bengal first, Rs.28; good second, Rs.26@Rs.27; English coal, Rs.38; African, Rs.27½.

AUSTRALIA—Considerable improvement has been noticeable recently in the coal trade in New South Wales, and the export business recorded during August was 60,000 tons better than that of July, and nearly 70,000 tons in advance of the June figures. One of the most pressing problems facing mine proprietors is the difficulty of disposing of the stocks of small coal.

Imports of Coal and Coke

	Gross Tons	
	Sept., 1921	Sept., 1922
Coal		
Anthracite.....	137	17,234
Bituminous.....	112,762	1,123,188
Imported from:		
United Kingdom.....	435	999,227
Canada.....	96,632	93,307
Japan.....	8,464	
Australia.....	7,230	28,950
Other countries.....	1	1,704
Coke.....	1,450	3,423

Pier and Bunker Prices, Gross Tons

	PIERS	
	Oct. 28	Nov. 4
Pool 9, New York.....	\$7.50@ \$7.75	\$7.50@ \$7.75
Pool 10, New York.....	6.85@ 7.15	6.75@ 7.00
Pool 11, New York.....	6.50@ 6.75	6.50@ 6.75
Pool 10, Philadelphia.....	7.15@ 7.65	7.15@ 7.65
Pool 11, Philadelphia.....	6.90@ 7.35	6.90@ 7.35
Pool 1, Hamp. Roads.....	6.85@ 7.00	7.00@ 7.15
Pools 5-6-7 Hamp. Rds.....	6.75	7.00
Pool 2, Hamp. Rds.....	6.85@ 7.00	7.00@ 7.15

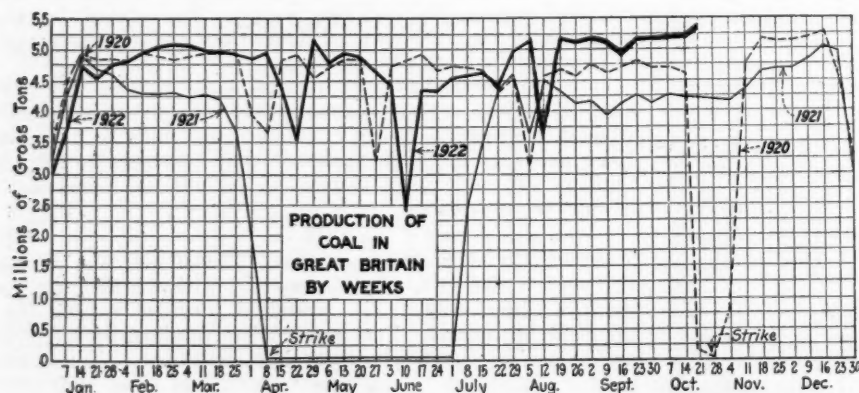
BUNKERS

Pool 9, New York.....	\$7.85@ \$8.15	\$7.90@ \$8.15
Pool 10, New York.....	7.20@ 7.50	7.15@ 7.40
Pool 11, New York.....	6.85@ 7.10	6.85@ 7.10
Pool 10, Philadelphia.....	7.65@ 8.15	7.65@ 8.15
Pool 11, Philadelphia.....	7.40@ 7.90	7.40@ 7.90
Pool 1, Hamp. Rds.....	6.85@ 7.00	7.15
Pool 2, Hamp. Rds.....	6.85@ 7.00	7.15
Welsh, Gibraltar.....	38s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro.....	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, Lisbon.....	37s. f.o.b.	37s. f.o.b.
Welsh, La Plata.....	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa.....	41s. t.i.b.	41s. t.i.b.
Welsh, Algiers.....	38s. f.o.b.	38s. f.o.b.
Welsh, Pernambuco.....	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia.....	64s. f.o.b.	64s. f.o.b.
Welsh, Madeira.....	42s. 6d. f.a.s.	42s. 6d. f.a.s.
Welsh, Teneriffe.....	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Malta.....	41s. f.o.b.	41s. f.o.b.
Welsh, Las Palmas.....	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Naples.....	41s. f.o.b.	41s. f.o.b.
Welsh, Rosario.....	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore.....	52s. 6d. t.i.b.	52s. 6d. t.i.b.
Welsh, Constantinople.....	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, St. Michaels.....	50s. t.i.b.	50s. t.i.b.
Welsh, Port Said.....	49s. f.o.b.	49s. f.o.b.
Welsh, Oran.....	38s. f.o.b.	38s. f.o.b.
Welsh, Fayal.....	50s. t.i.b.	50s. t.i.b.
Welsh, Dakar.....	42s. 6d. f.o.b.	42s. 6d. f.o.b.
Welsh, St. Vincent.....	42s. f.a.s.	42s. f.a.s.
Welsh, Montevideo.....	50s. f.o.b.	50s. f.o.b.

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to Coal Age

	Oct. 28	Nov. 4
Cardiff:		
Admiralty, large.....	27s.6d@ 28s.6d	28s. @ 29s.
Steam, smalls.....	16s. @ 16s.6d.	16s. @ 17s.
Newcastle:		
Best steams.....	27s.	27s.
Best gas.....	24s. @ 25s.	24s. @ 25s.
Best bunkers.....	23s.6d.	23s.6d.



North Atlantic

Firmness Pervades Market Due to Meager Car Supply

Big Buyers Prevent Further Price Slump—Receipts Readily Absorbed, Though Average Consumer Bides Time — High-Grade Coals, Now Scarce, May Disappear with Seasonable Weather.

Extremely poor car supply kept the market firm last week. Big buyers are all that hold prices from slumping further. The light receipts are, however, absorbed with but little difficulty, but the average consumer is content to rest on his oars. Some of them have accumulated sufficient reserves to enable them to await heavier receipts, which it is felt will soften the spot market.

High-grade coals are very scarce. Any seasonable weather will hasten their disappearance from the market. Southern coals are moving in slowly and British receipts are now only occasional. Much complaint is heard from the mines over poor commercial loading time, while railroad fuel loadings are being given preferential car supply, it is asserted.

PHILADELPHIA

The consumer continues to be perfectly satisfied under present conditions, while the producer complains that the limited production makes mining extremely expensive at present prices.

Everyone still talks of shortage of cars, although some roads take exception to this statement, and maintain that the market is being well taken care of. The transportation lines point out that they are carrying the heaviest tonnage of general freight for many years and that coal shippers cannot expect to get all the cars.

The big buyers continue to be the railroads, steel plants and power concerns, and it is this buying that is keeping the market up. Quite a few of the private plants have already accumulated supplies in excess of normal, although the railroads are much behind.

The best market has been in the high-grade coals, with Pool 1 very scarce. While Pools 9 and 71 are in better volume the prices at this time are inclined to become a trifle more firm.

The steamship Nordfarer cleared for Havana last week, the first cargo in some time.

NEW YORK

There has been a slight improvement in the Tidewater market and more activity exists in the line trade. At times the improvement has been reflected in the quotations but the market is still spotty.

Buyers showed a little more interest

but were cautious about placing orders. In some quarters quiet buying is reported which has been spread over considerable territory. In this manner it is thought many consumers are better prepared for the future than is generally known. The railroads have taken good care of themselves, contracts being reported under \$3 for assigned cars.

There were at the local terminals on Nov. 2, 1,489 cars of coal, nearly all of Pools 9 and 10. This was approximately 500 cars less than there was on hand the first day of the week.

Producers report a better demand from New England for Pennsylvania coals after strong efforts made to regain some of the business lost to Southern coals during the strike. In this market Southern coals are being received in smaller quantities while British coals are arriving only occasionally.

Pittsburgh gas run of mine was quoted locally \$4.50@4.75 and lump, \$5@5.25 early in the week. Other quotations included Shawmut district around \$3.25; Allegheny Valley, \$3.30; B., R. & P., \$3.25; Westmoreland gas, \$4.15; Westmoreland slack, \$4.75, and Broad Top smokeless, \$4.50@4.75.

CENTRAL PENNSYLVANIA

The car shortage is becoming more acute as cars are being diverted to the hard-coal regions. In many instances, even box cars are being sent east. On the other hand, but little coal is bought, the market being exceedingly dull. The output during the week ended Oct. 22, was 18,885 cars, against 20,249 for the week previous. At some places mines were without cars all week and in order to keep the men busy, large quantities of coal were being stored.

The lower grades are selling at \$3@3.25, while Pool 10, which is extensively mined, ranges \$3.25@3.60; Pool 9, \$3.50@4, and Pool 71, \$4@4.75.

UPPER POTOMAC

Conditions in the Upper Potomac more nearly approximate normal in so far as production is concerned. In the Georges Creek field the strikers in certain sections such as Frostburg and Lonaconing are still holding out in the hope of forcing a recognition of the union. In neither region is the demand particularly stiff.

BALTIMORE

The striking feature of the market continues to be the light demand and the sliding scale of prices. This is made quite plain when it is pointed out that the average spot price of all grades of soft coal at the end of September was around \$5, while the present price average is about \$1.50 lower. There is enough coal at present to go around in easy fashion despite the poor run of cars, which has now been a feature for several weeks.

Some increased demand is noted from retail dealers who are persuading householders that they must burn soft coal in lieu of anthracite. This element is by no means heavy, however, and has not had any material effect on the price

list, which is as low as it has been for a number of weeks past. The importation of English coal is not brisk at this point.

FAIRMONT

Transportation conditions appear to be improving slightly yet mines are hardly getting more than 25 per cent car supply, with those having railroad fuel contracts being given the preference. Lessened movement to Western markets because of additional embargoes only forced more tonnage to the East, and tended to soften prices. Not much coal was consigned to Western points except by way of the Charleston gateway and thence over the K. & M.

West

SALT LAKE CITY

Operators indicted by the district grand jury last week have appeared in court and given bonds. Individuals indicted are all well known in the industry. There is practically no public interest in the proceedings.

Vice-President Moroni Heiner of the U. S. Fuel Co. told a *Coal Age* correspondent that the car shortage is worse now than he has ever seen it here. Mines are working around two days a week and this condition is almost entirely due to the car situation. There is a surplus of labor and men are being turned away every day. Operators are behind on their orders, but not hopelessly.

Some business is being done in California, Washington and Oregon, but no Utah coal is being placed on the Pacific. Railroads are buying for current use only. The local market has improved somewhat as a result of the cold snap but practically nothing is being done on storage orders, though many are still without their winter supply.

DENVER

The lack of production in Colorado, due to car shortage and railroad disability during the week ended Oct. 21, according to statistics compiled by operators here, amounted to 41 per cent or 87,605 tons. Mine disability for that period was only at the rate of 915 tons. Loss of production on account of no market was 1.4 per cent or 2,873 tons. The actual production amounted to 56.4 per cent or 118,147 tons.

In spite of the car shortage, production in Colorado from Jan. 1 to Sept. 30, 1922 shows an increase of 307,105 tons over the same period in 1921, there being 6,916,131 tons of coal mined thus far in 1922. Warm weather has softened the domestic demand though few consumers are ready for winter.

KANSAS CITY

Warm weather has caused a slump both in demand and price for some grades. Kansas nut coal is piling up at the mines and it is estimated that there are 400 cars of that grade awaiting orders.

Retail demand has slumped along with the wholesale, but steam coal is easier and demand for slack is holding up well when compared with other grades. Prices for Kansas are unchanged.

Anthracite

Operators Booked Way Ahead; Receipts Decline in East

Retailers Able to Fill Only Part of Urgent Demand—Lake Business Blamed—Independent Coal Offered Freely, but Dealers Are Backward in Ordering It.

Producers are heavily booked ahead. Eastern receipts are so low that retailers are unable to fill more than a portion of their urgent consumer demand. Lake business is given as the reason for the decline in Eastern movement. During October 395,100 tons cleared from Buffalo, but the movement is now declining.

Independent coal is more freely offered, but dealers are slow to place orders for the high-priced tonnage. Substitute fuels are not finding a ready market, thereby adding to the volume of unfilled anthracite business on retail books. Buckwheat is in somewhat better call, but other steam grades are slow and companies are still running to storage.

NEW YORK

There is an urgent domestic demand. Dealers—wholesale and retail—are being pushed for deliveries with the result that producers nearly without exception, are heavily booked ahead.

Consumers continue to insist upon receiving their regular sizes, notwithstanding the shortage and the efforts being made to introduce the use of substitutes.

State Fuel Administrator Woodin issued an order on Oct. 27 and until further notice all egg, stove and chestnut coals dumped at the railroad terminals for delivery to dealers in Greater New York, or arriving by rail at the dealers' yards shall be known as peddler pool coal and no delivery to any consumer shall be made from such coal in excess of one ton.

Quotations for straight lots of egg, stove and chestnut as high as \$12.50 from some of the independent operators continue although the larger independents are, as a rule, a couple of dollars lower.

Buckwheat is moving better but is comparatively weak. Rice and barley are flooding the market. There are reported to be more than 2,000 cars of these coals at the various terminals with more than 100 loaded boats in the harbor.

PHILADELPHIA

The amount of coal for delivery is even less than last week, and the yards are near the condition they were in during the summer. Some mild weather having prevailed the pressure on the dealers has been lightened somewhat, but the consumer is nevertheless greatly

worried. There have been instances of late where retail men have actually locked their doors against would-be purchasers.

There is just the slightest hope that relief will be forthcoming a little earlier than Dec. 1, which latter date has been the usual time for the speeding up of deliveries to this market.

Many dealers are already taking in a little bituminous coal, as well as coke, and an even larger number have purchased a car or two of buckwheat. The consumer, however, when he is confronted with the fact that there is a shortage of anthracite now intimates that it is artificial and that everything will be all right soon.

Steam coal is little changed, although buckwheat may be said to have made some gains. Rice and barley are plentiful, and all sizes continue to be sold off company prices.

BALTIMORE

The fuel committee continues to take up a number of questions, especially along hard coal lines. One of the interesting situations of the moment in this regard has to do with a Pennsylvania operator who is said to have made offers by letter of coal at a price considerably above the maximum.

The situation of the hard-coal dealer is none too pleasant. More than 40,000 families are still without coal and the complaints that are pouring in are of a strenuous nature. Dealers say that it is hard to deal with some of their old-time customers who think they should be given preferential treatment, and who insist upon having hard coal. A number of the dealers have gotten down to the delivery of one-ton lots and are far from getting around the circle of their customers even on that basis. Coal is coming in at the rate of about 3,500 tons per day, with a shortage of over 250,000 tons to meet.

BOSTON

Householders are still proceeding comfortably on the assumption that somehow they will have enough coal to keep them warm through the winter. Receipts are discouragingly low, especially by the all-rail route, and retail dealers who have not been able to make one-ton deliveries on more than a fourth of their orders are wondering what will be the outcome.

At wholesale production lags notably. A succession of miners' holidays is one cause, and a developing car shortage is another.

BUFFALO

The supply is coming in so slowly that consumers are in despair. Dealers are wondering how they are going to stand the pressure when cold weather sets in.

Lake movement is rather light although for October the loading was 395,100 net tons as compared with 394,490 tons last year. Last week loadings were 94,200 tons, of which 47,400 tons cleared for Duluth and Superior; 3,000 for Hancock; 600 for the Soo;

17,500 for Milwaukee; 6,200 for Escanaba; 7,500 for Chicago, and 12,000 tons for Green Bay. Freight rates are 40c. to Duluth; \$1 to Hancock and the Soo; 50c. to Chicago; 50c. to Milwaukee and Green Bay, and 55c. to Escanaba.

Coke

CONNELLSVILLE

The market is fully as strong as a week ago, from the price view-point, and a close analysis might show it a shade stronger. Distress coke, on track and requiring to be moved, goes at about \$7.50, while for shipment over a few days or more the market is steady at \$8.

Current buying appears to be light, while production has been increasing continuously. Prevention of further decline appears to have occurred by a number of furnaces concluding to buy to the end of the year on the drop from \$12 to \$8, not waiting for any further decline, and insuring themselves against an advance in December, which might occur on account of railroads being affected by bad weather.

The pig iron market is very dull and it seems improbable that any more idle furnaces will go into blast in the near future. Furnaces consider \$8 altogether too high for coke, when they have difficulty in selling pig iron at \$30 and have to make iron on old orders at considerably less. Foundry coke remains at \$10 to \$11, with only a moderate demand.

The *Courier* reports production during the week ended Oct. 28 at 109,110 tons by the furnace ovens and 50,670 tons by the merchant ovens, a total of 159,780 tons, an increase of 13,060 tons.

UNIONTOWN

Clearing up of congestion at the Lakes together with a railroad jam in the Eastern market were responsible for a stiffening of both the Eastern and Lakes market this week in the Connellsville region. As soon as the jam at the Lakes was relieved buyers there commenced sending orders into the region.

A quick coke market with a slipping price has tended to absorb much of the surplus furnace tonnage to the point now where coke is again becoming scarce. On top of that is renewal of contract negotiations, the first of any importance this year, indicating that some furnaces at least prefer to have their fuel supplies come in regularly than to take chances on a temporary advantage in spot sales.

Steam coal is quoted at \$3@3.50 and byproduct, \$3.50@3.75.

The strike situation remains unchanged. The union is continuing the erection of barracks at the various coke plants replacing the tents occupied by strikers during the summer.

BUFFALO

Coke is not active so far as the big smelting trade is concerned and is quoted by jobbers at \$10@10.50 for foundry, \$9.25@9.75 for furnace and \$7@7.50 for odd grades. The local byproduct plants are increasing their oven activity on account of the domestic demand, selling their screened product at \$12 at the ovens.

Chicago and Midwest

And Now Domestic Sizes Lose All Their Buoyancy

Producers Decline to Drop Prices but Demand Slacks in Hope That Spens Will Lower Market—Nut and Egg Are Suffering with Screenings.

The main struggle going on all last week in this region was to prevent the slump of prices on domestic sizes. It cannot be denied that demand for domestic egg and nut and even for lump slacked off noticeably after Fuel Distributor Spens' visit to the Illinois and Indiana producers Monday and Tuesday, Oct. 30 and 31. He asked that domestic prices be cut. The producers of both states declined, but the market sagged anyway and the only thing expected to save it was a cold wind from the North.

Steam demand continued to be absent. Almost every car of screenings that was not shipped under an iron-clad contract had to be forced. Southern Illinois sank as low as \$2.25 when it had to go on the open market though a good deal was shipped at as high as \$3 on contract. Car supply did not improve in any field but the weakening of the market made it impossible, for the first time, for some of the fields to use all the cars that were allotted them.

Practically all the business the western Kentucky field gets is day-to-day trade, which is unsatisfactory. Lump there is quoted at \$4.50 @ \$5.25 but there is shaving of the price occasionally to get all the output started away from the mines. In eastern Kentucky a few big buyers, concluding that Jan. 1 will see the market upset, are beginning to contract for the entire output of certain operations from now until April 1, at a figure a little above the present mine run market.

CHICAGO

If the Chicago coal market was discouraging a week ago, now it is absolutely depressing. The visit of Fuel Distributor Spens and his public efforts to get domestic prices reduced by agreement among coal men has had the inevitable effect. Domestic demand, which was the only demand there was, has softened. Continued warm weather has noticeably slowed buying of big coal. People who were more or less of the opinion that prices would drop, now are assured of it—and another ten days of this warmth is certain to produce that result.

Up to the end of the week the principal Franklin County producers published no concessions on their lump price of \$5.50. Central Illinois lump ranged \$4.50@ \$4.90 whereas some of it had previously sold a little above \$5, and Standard district lump had hard sledding at \$4.25. Indiana lump maintained its level of the week before. Egg and nut sizes weakened some and screenings continued to be a sodden drug on the market.

A small volume of Pocahontas kept reaching here at \$6@ \$6.25 and enough hard coal was in the market to supply a part of the demand, though most of this anthracite, as usual this year, is shipped here by one concern. Old line company mine prices on the larger sizes range \$6.92@ \$8.25 but occasional shipments of independent coal average around \$12.50@ \$13 with an offer on a small quantity now and then running much higher.

Trade in everything has been getting lighter day by day for the entire week. The coal fraternity is still watching the Northwest skyline and the weather reports for hopeful signs of a storm and coal such as drifted down into Utah and Wyoming. When it comes, they say, the abnormal coal situation will remedy itself in large measure.

ST. LOUIS

Buying of both steam and domestic is practically at a standstill. Contracts are being held up and almost no coal is moving except that which is forced in anticipation of lower prices. Dealers have a pretty fair supply on hand and in transit and are afraid of being caught in the event of a decrease. This same condition applies to the country.

A summing up of coal men's opinions here is that a price on southern Illinois domestic size will be somewhere around \$4.25@ \$4.50. This would mean a cut of up to \$1.25 under present prices. Figuring on the same basis, Mt. Olive for country shipments would be about \$4 and for St. Louis shipments would range about \$3. This is almost impossible. Standard, based on the proposed reduction in the price of southern Illinois, would be \$1.50 under southern Illinois, which would be about \$3 for domestic sizes.

Retail prices, Nov. 1, for sidewalk delivery, were: Standard, \$6.75; Mt. Olive, \$7.50; Carterville, \$9.50; Anthracite, \$15.50; Coke, \$12.50; Smokeless, \$14.

Anthracite receipts recently compiled show up to Sept. 30, 5,000 tons had been shipped to St. Louis; 1,500 tons were shipped the week ended Oct. 7 and 3,000 tons ended Oct. 14.

WESTERN KENTUCKY

The field is getting a slightly better car supply, due in part to shorter hauls, cars getting back to mines more rapidly, and due to the fact that repairs are being made to slightly disabled equipment more readily now that the railroad shops are speeding up.

October car supply ran slightly better than 36 per cent on the I. C., and about 24 per cent on the L. & N. This

was a better showing than in September. Production has been maintained on car-supply basis.

It is reported that some western Kentucky production has been loaded out by water to Memphis and Southern river points, by loading barges one-third to one-half full, and using light draft towboats. With a very poor stage of water in the Ohio, river movement has been necessarily small.

General prices appear to be a little weaker, though best coals have held their own.

SOUTHERN ILLINOIS

Continued mild weather has prevented the speculative market that was expected about this time. While lump and egg from the Carterville field is moving fairly well, nut coal and screenings are barely moving and some mines are carrying no-bills. The tendency is to put off buying until something definite is known as to what the Government is going to do about prices.

In the Mt. Olive district there has been a surplus of all kinds of coal the past week. One reason that domestic coal does not move is on account of hopper-bottom equipment. Steam is unusually slow. The Chicago market for this coal has been easy and very little is moving to Omaha and Kansas City. The situation in the Standard field is bad. Screenings are down to \$1.25, while 2-in. lump has dropped from \$3.75@ \$4 to \$3.25 and the steam nut has gone as low as \$2.50.

Railroad tonnage out of both the Mt. Olive and Standard fields is fairly good. Mt. Olive district screenings are holding at \$1.50@ \$1.75, while Carterville are down to \$2. There have been occasional breaks in the prices of other sizes, but as a coal the Carterville and Mt. Olive fields are maintaining their domestic prices pretty well.

Movement of coal out of the Standard field has been extremely bad on account of embargoes. The railroads are obliged to take the billing and then they just put the coal on a side track and there it stays.

LOUISVILLE

A considerable volume of day-to-day business is being handled and a little open business where jobbers are given instructions to ship all they can secure at bottom prices. It is reported that some of the larger consumers have been placing a few contracts for production of mines, or part production, to April of next year. Some producers are unwilling to contract, as they see a higher market later, but others are very uncertain concerning the market from January forward.

Some coal men at the present time are arguing that cold weather will create a big demand, and that prices will jump fast, and that neither mines nor railroads will be able to take care of demand. Others hold that when Lake movement stops it will force present shippers to the Lakes to look for business, and will result in much larger production of lump coal which will take care of domestic demand, while screenings will go a long way toward supplying industrial demand.

Most retailers have very little coal on hand and only about half the domestic stockers have laid in full winter supplies. Undoubtedly retailers are going to be in the market rather steadily this winter for practically everything.

Eastern Inland

Last-Minute Lake Business Checks Declining Prices

Good Dispatch at Lower Ports—Car Supply Only Factor Limiting Production—Domestic in Strong Demand—Ohio Producers Co-operate with Fuel Authorities.

Prices are decidedly firm. The end of the Lake season is in sight and last-minute orders have helped the market. Dumpings are proceeding steadily and dispatch at the lower ports is good. Car supply is the only factor limiting production and there is so little free coal available that the market appears quite active. Domestic is in strong demand and industrials are quietly taking all possible tonnage without creating a bidder's market.

Ohio coals show a wide range. Much of this fuel is going out of the state at figures in excess of Ohio's maximum prices. At a conference last week Ohio producers agreed to co-operate with the authorities who seek to avoid the confusion of replacing this tonnage from outside sources.

EASTERN OHIO

Operations during the week ended Oct. 28 were again diminished by car shortage. Output was less than any week since early September. Tons produced amounted to 294,000 or about 47 per cent of rated capacity. Production during the calendar year indicates that out of a potential capacity of 25,977,000 tons only 8,491,000 tons or 32 per cent have been mined. The transportation situation is now equally bad on all lines serving this field and the volume of output is limited solely by car supply.

With the smaller quantities of free coal available, demand has been considerably in excess of the supply and the trade, therefore, quite active. However, the larger steam users are awaiting the closing of Lake navigation at which time it is confidently expected there will be a plentiful supply.

In the spot market prices are holding at the maximum figures set by the Ohio Fuel Administration. Only small quantities of Pocahontas lump are reaching this section.

Receipts at Cleveland during the week ended Oct. 28 were the largest of any week during the past two years. Total arrivals aggregated 2,365 cars, an increase of 548 cars over the preceding week. Of this quantity 1,829 cars were consigned to industries and 536 cars to retail yards. Weekly receipts for the past month closely approximate requirements.

It is figured that in order to take care of this season's program about 3,000,000 tons of Lake coal will have to be sent forward.

Receipts at the lower docks are averaging around 2,300 cars per day and loadings around 2,500 cars daily. The railroads had 8,871 cars at the Lake front on Nov. 1 and 4,800 cars in transit.

CLEVELAND

The market has turned definitely upward. Demand for industrial fuel is brisker than for some months. There is still no sign of buying for stock piles, however. That hand-to-mouth buying still prevails is evident from the fact that dealers report numerous pressing inquiries for delivery within 24 or 48 hours. Such prompt delivery is difficult to obtain and as a consequence consumers are beginning to realize that they have stayed out of the market too long.

The car supply is still scarce and much Ohio coal has been going out of the state because of the low fixed prices. As a result of the intervention by Federal Fuel Distributor Spens Ohio operators have agreed to load more fuel for consumers within the state in return for the assurance of more cars. The approach of cold weather, however, is expected to increase the demand sufficiently to keep the market strong.

Prices are up on an average of 50c. a ton for most grades over two weeks ago. No. 8 3-in. is bringing \$4.75 against \$4.25 two weeks before. No. 8 slack is quoted at \$3.50. Middle district mine run is quoted at a range of \$3.50@3.75; screenings are \$3.50@3.75.

Up to Nov. 1 a total of 14,000,000 tons of coal had been sent by Lake to the Northwest. This compares with 20,000,000 tons to Nov. 1 in 1921. It is expected that between 3,000,000 and 4,000,000 tons more will be shipped.

PITTSBURGH

Coal prices on the whole are decidedly firmer than a week ago and the market in general may be said to have advanced about 25c., with the exception of domestic. By agreement with the fuel authorities operators are limiting 14-in. domestic lump to \$4.50 as maximum, which compares with \$5.25 @ \$5.50 ruling early in September. In some quarters it is suggested that the stiffer attitude on other grades is due to the concession made on domestic.

Car supplies continue far below capacity, but are as good as at any time recently. There is a heavy movement in Lake coal, with some purchases being made. The line trade appears to be well taken care of as to current consumption. There does not seem to be any disposition to stock coal at this time.

Steam is now quotable at \$3.25@ \$3.50, this being for either Pittsburgh district or Connellsville coal of good grade. Byproduct commands \$3.75@ \$4 if of fair grade. Both steam and byproduct are 25c. higher than a week ago. Gas coal has stiffened even more, good Youghiogheny commanding \$4.50 for mine run and \$5@ \$5.50 for screened, while the better Connellsville gas coal brings \$4 or possibly \$4.25 for mine run.

BUFFALO

Some shippers call the prices a little stiffer, some do not. It all depends on the temper of the consumer. At the same time the buying is fairly good. The number of sellers has increased considerably of late, here at least, and that gives the market a dull look.

Bad storms will, no doubt, stiffen up coal prices, but more cars will put the prices down. It is a stand-off which idea is to prevail. Only scarcity of cars has held prices up where they are. While there does not seem to be much coal moving that has not been sold, if shipments fail to come in the consumer will pay more for a quick shipment. Quotations are about \$5@ \$5.25 for Youghiogheny gas lump; \$4.75@ \$5 for Pittsburgh and No. 8 steam lump; \$4@ \$4.50 for Allegheny Valley and all mine run; \$3.25@ \$3.50 for slack. To this add \$2.09 to Allegheny Valley and \$2.24 to other coals to cover freight.

COLUMBUS

With comparatively warm weather still continuing there is a slight recession in the domestic trade and prices have started to weaken. Dealers' stocks have been gradually increased during the past few weeks and some are not buying any more coal until they have disposed of what they have on hand.

Retail prices are steady at former levels. Hocking lump is not plentiful as a large part is still going out of the state. West Virginia grades are selling around \$10 delivered and Pocahontas even higher.

Steam trade is rather good. Prices at the mines are firm at state fuel administration levels with \$3.75 the usual figure. Screenings are selling slightly lower than the levels provided by the administration.

DETROIT

With moderate temperatures continuing, buyers are not manifesting the degree of interest that jobbers believe is necessary. Bituminous coal is coming into Detroit in moderate supply, but the quantity arriving apparently just about equals the amount called for in the hand-to-mouth system of buying.

Most of the receipts are coming from mines in Ohio. Hocking lump and egg is quoted \$5.65@ \$5.85; mine run is \$3.75, nut, pea and slack, \$3.35. Three-quarter lump from the Fairmont district is offered at \$4.50; mine run, \$4, slack, \$3.50. Pittsburgh No. 8 3-in. is quoted \$4.50; mine run, \$3.75; slack, \$3.40. Four-inch domestic lump from West Virginia or Kentucky is held at \$6.25, with egg at about the same price; mine run and slack are \$4.

No improvement has occurred in anthracite supply. Shipments are equal to perhaps one-third of the normal daily requirements.

NORTHERN PANHANDLE

Mines were somewhat handicapped by the difficulty of getting coal through the Holloway yards of the B. & O. but with other outlets available Western and Northern shipments were not affected to the same extent as in other regions of northern West Virginia. Although the demand for steam coal is not particularly keen, yet buying is on a somewhat larger scale than it has been recently.

Northwest

Dull Market May Precede Storm When Cold Comes

Bituminous Demand Is Just as Soft as Weather—Prices Weaken in Spots—Only Cry Is for Hard Coal—All-rail Competition Causes Concern.

Soft weather prevailing for more than a week is depressing the market and even though receipts from the Lakes are not tremendous, yet soft coal continues to pile up on the docks with consequent worry on the part of dock men and some shaving of prices here and there to move it. This is not true of hard coal, however. The demand in most quarters has grown stiffer as the days pass and prices, especially at Duluth, show an upward tendency. As much as \$1 has been added on all sizes above buckwheat, which, as usual, is a drug. In Milwaukee the increase has not made any progress.

The volume of rail coal going into the Northwest is worrying many dock men. Illinois and Indiana mines are shipping steadily into southern sections of this territory, finding there a chance to expand a steam market that is almost dead in their own states. On the whole the situation is quite unsatisfactory for everybody concerned.

DULUTH

Anthracite is by far the most prominent feature here. With the advent of cold weather there was a general rush of hurry-up orders which has increased until by now dealers are at their wits end and are supplying lots of one and two tons. Two companies have advanced the price of anthracite \$1 at the dock. Others may follow suit at once. Egg is selling at \$13.50, nut at \$13.80, stove at \$13.75, pea at \$12 and buckwheat remains \$7.50 as before.

A firmer trend is noticed in bituminous prices, but there has been no upward change as yet, with the exception that the 25c. differential between Hocking and other soft coals has been eliminated.

Forty-four cargoes arrived during the week, of which seven were anthracite. On the way from lower ports are twenty-four of which four are hard coal. Vessel owners here have given assurance that there will be sufficient bottoms to carry all available supplies until freeze-up.

Official figures have not been released, but it is estimated that 1,600,000 tons were brought up during October. The majority of this was bituminous. According to C. P. White, federal administrator for the Northwest, this section

will receive plenty of soft coal, but will only get about 30 per cent of needed anthracite by water.

Dock men here fear they are losing lower state customers to Illinois rail coal shippers.

MILWAUKEE

Mild weather has a soothing effect on the market. Demand is only fair, and there is an absence of concern as to the winter's fuel supply, notwithstanding disturbing newspaper reports predicting a big anthracite shortage. Reports of reduced prices in the Ohio and Pennsylvania tend to check buying of soft coal to some extent.

The yards are filling up with soft coal under heavy receipts by Lake. Coal will have to move to the interior much faster than it has if room is to be provided for the final rush before the close of navigation. Anthracite is coming slowly, and it is evident that dealers are wary about stocking up at present prices. There has been no change in prices of either coal or coke. Any raise in prices is bound to be scrutinized very closely by the state marketing commission.

October receipts by Lake, not including carferry receipts, aggregate 141,414 tons of anthracite, and 654,945 tons of soft coal, making the season's receipts 142,114 tons of the former, and 1,945,900 tons of the latter. Last year the re-

ceipts during the same period aggregated 855,750 tons of anthracite, and 2,319,716 tons of soft coal.

MINNEAPOLIS

The fall situation is a contest of endurance, with buyers holding out as long as they dare, and seemingly a great deal longer than good sense would dictate. The buyers have forced various concessions in prices on soft coals, both dock and all-rail even though the volume of fuel available or in prospect does not equal the implied requirements.

If the prolonged endurance test works out to the advantage of the buyer again this year, it will be obvious that the wholesale trade will have a difficult task ahead to market coal in normal seasons—if there is ever to be such a period again. Buyers won in two or three endurance tests and feel their ability to overcome any situation that they may encounter.

There is left only about three weeks of navigation on the Great Lakes. And despite the excellent tonnages moved to the docks, the output for the season shows a sharp decline. Even after deducting the carry-over of last spring and figuring the tonnage consumed last year, the present season's totals are low. On any reasonable comparison of the two seasons the present winter will not have enough coal. And the surplus will have to be filled out with all-rail coal. Doubtless there will be a somewhat better showing from the Illinois mines than a year ago, but the tonnages will have to show a heavy gain to make this year's receipts equal to last year's consumption.

New England

Buying Falls off Again; Spot Prices Are Uncertain

Little Interest Evinced in Current Market—Wide Variation in Quotations and Only Scattered Tonnages Placed at Lowest Figure—Consumers Supplied in Advance.

Buying has again dropped off. There is so little interest in the current market that it is hard to say for just what prices spot coal is selling. Pocahontas and New River are being offered all the way from \$8.50 down to \$7.90 on cars, Boston or Providence, for Inland delivery, but even at the lower figure only scattering tonnages are being placed.

The smaller consumers entered the market for moderate purchases ten days or so ago, but, having arranged for their requirements for the balance of the calendar year, they see no reason for buying still further in advance. The larger users have comfortable reserves, due chiefly to heavy receipts of British coal, and appar-

ently there is no disposition even to sound the present market.

At the Virginian terminals a few cargoes are moved, but the great bulk of coal at the piers is being applied on early contracts. Most of the agencies have men out scouring the territory, but so far as reported their efforts bring only small results. In other words, the expected firmness in price has not materialized.

The smokeless coals are being held at \$6.75@7 per gross ton f.o.b. vessel. Accumulations, however, have diminished more than 100,000 tons at the Hampton Roads piers, due not to increased demand at tidewater but partly because of smaller receipts from the mines and partly also on account of better car movement west. With the season advancing it is only natural, particularly in view of anthracite shortage, that the Western and line trades should absorb an increasing proportion of prepared coal.

The trade all-rail from central Pennsylvania continues quiet. Receipts at the Hudson River gateways show a fair average movement, but most operators are apprehensive that orders will fall actually short of car supply. At the New York and Philadelphia piers there is practically no business on steam grades.

Cincinnati Gateway

Indecision Is Outstanding Feature of Spotty Market

No Notable Price Concessions with Lifting of C. & O. Embargo—Recessions Foreshadowed—Huge Movement of Loads, but Return of Empties Falls Behind.

The lifting of the embargo which the C. & O. enforced during the week ended Oct. 31 brought about another spotty market that has been more largely marked with indecision than price concessions. Evidences of coming drops in prices can be observed in rejections of coal shipped through the Cincinnati gateway to the steel interests in the neighborhood of Chicago as well as the industrial centers around Detroit and Toledo.

Car movement over the Ohio River bridges has again climbed to stupendous figures although the superintendent of terminals here pointedly remarks that there has not been a corresponding return of the empties. All three of the coal carriers using this as a connecting point are in distress through lack of motive power and shortage of cars. Most of the Hazard and Harlan mines report they are lucky to get 1½ to 2 days' supply of cars.

HIGH-VOLATILE FIELDS

KANAWHA

An embargo imposed by the C. & O. on the westward movement of Kanawha coal during the final week of October forced all the product of this field into Eastern markets where there was no demand whatsoever and to which producers of high-volatile coal had been making no effort to ship. The embargo thus had the effect of forcing further recessions in prices. Producers were forced to take \$3 a ton or lower, with the alternative of closing down, as against a price of \$4 in Western markets, with gas coal commanding a price of little less than \$4.50. With the outlet so restricted a limited car supply made less difference than usual.

LOGAN AND THACKER

Embargoes also affected the Logan district. Few companies had any Eastern orders when the embargoes became suddenly effective. Many of the mines were shut down during the last days of the month.

A good deal of interest was attached to the announcement made as to the abandonment of the strike called by the United Mine Workers in Mingo County in 1920. During the latter part of October and the first few days of November there was a somewhat better run of cars than in other fields so

that Thacker mines were able to produce 40 per cent of normal. Prices prevailing in the West are fully \$1 a ton higher than in the Eastern, and almost the entire product continues to move westward.

NORTHEASTERN KENTUCKY

Production in the section supplied by the C. & O. was upset during the closing week of October. The embargo bottled up most of the product since nearly all of it is being sold at the Lakes and in Inland West markets. Mine run, so far as Western delivery is concerned, is commanding a price of \$3.75@4.15 but the same coal in the East cannot be sold for more than \$2.75@3.

LOW-VOLATILE FIELDS

NEW RIVER AND THE GULF

Embargoes diverting coal from normal channels and a shortage of cars disarranged conditions in the New River field during the last week of October. All C. & O. coal was being moved eastward, without regard to whether it was produced in high or low volatile territory. The additional coal shipped to Tidewater and Eastern territory in general only caused further price recessions. In the East smokeless mine run, particularly at Tidewater was little more than \$3. Lump could have been sold at \$6@8.50 but most of the smokeless producers were not selling it above \$6, owing to the agreement with government agencies.

Demand for Gulf fuel would have justified a production of more than 30 per cent, which was all that was possible owing to limited transportation facilities. Physical difficulties prevent the shipment of much tonnage to the West where much better prices prevail. It is not possible to obtain more than \$3.50 for mine run at Tidewater whereas the same coal would bring \$6 in Western markets.

POCAHONTAS AND TUG RIVER

Inasmuch as the N. & W. was the only road handling much smokeless for points west of the Ohio River, the Pocahontas region managed to get a little more coal into Western markets than other smokeless regions. The N. & W. is not encouraging a large Western movement, owing to the difficulty in securing the return of empties. The average mine is working two days a week. Run of mine for Western delivery is bringing about \$6 a ton as against \$3.50@4 at Tidewater. Lump is being limited to \$6 per ton although producers could secure practically any price they desired if so disposed.

Tug River production is being gradually increased but mines are still experiencing a great deal of difficulty in securing all the cars they need. In the ordinary course of events most of the coal originating in this district is sent to the West, and hence only a certain class of equipment can be used. The demand for byproduct is fairly active. Mine run commands a price of \$6 which

is equal to that for egg and lump under the fair price agreement. Very little of the product is going east.

CINCINNATI

Lake buying has again tapered off here which, with a foreshortening of the steel demand has cut the high prices a bit for byproduct and gas coals as well as the steam and splints. The former still maintain the premium that has been exacted for months past though there is not the big spread between the two prices that there was two or three weeks ago. Domestic buying has been a little lighter and the production greater which has inclined the values toward softness—nothing radical, but lacking in stability.

There has been virtually little change in the smokeless lines. The movement westward has been better because of the release of some of the smaller sized equipment that was held at the Lakes. This with the easing off of the Eastern markets has caused more attention to be paid to the Inland trade and it would surprise no one—with the close of fresh water carriage—to see a much heavier movement to the customers whose orders have been booked for months by both Pocahontas and New River concerns.

The retail situation shows no change. Figures are still under those promulgated by the Ohio Fuel Administrator with some splint lump selling as low as \$8.75, delivered.

South

BIRMINGHAM

Each succeeding week seems to increase the gravity of the car situation, the shortage being reflected in a decrease of 10,000 tons in production for the week of Oct. 28, as compared with the previous period. Official figures show that only 45 per cent of the equipment ordered was furnished, and indications point to a less favorable showing for the current week, mines located on the L. & L. being very hard hit.

There has been no improvement in the steam coal market—in fact it is weaker, if anything, consumers showing little interest in acquiring a supply far in advance of requirements. The supply available for the spot trade is about in line with the volume of demand except as regards the lower grades, there being some surplus of Big Seam and the like. Quotations on better grades are holding up well.

Dealers in domestic coal are showing considerable concern in regard to winter supply. Numbers of yards are practically empty, while none has stocked to any extent as yet, and the slow movement and curtailed production is being viewed with alarm. A few days of sustained cool weather would wipe out the supply on local yards.

VIRGINIA

Production losses in one section are being offset by gains in other parts of the field with mines on the Southern producing a much larger percentage than usual. The total output is still adhering to about 65 per cent of normal. Production is hardly more than equal to the demand. The price at Tidewater is little more than \$3 a ton. Falling prices have had a tendency to eliminate some of the smaller mines.

News Items From Field and Trade

ALABAMA

It is reported that hydraulic mining of coal will soon be inaugurated at Alco, near Shiras, by the **Alco Coal Co.** Arrangements have been made to transmit electricity from the transmission line of the Alabama Power Co. to the hydraulic plant, which will pump water from Hurricane Creek for washing away the surface of the coal. About 500 tons a day will be mined by the new method, according to an official of the company. This is the first time hydraulic mining as applied to coal has been tried. The Alco company has spent about \$56,000 on its new plant.

Erskine Ramsey, vice-president and chief engineer of the Pratt Consolidated Coal Co., and well known capitalist, has donated \$100,000 as a nucleus for the erection of an engineering hall at Auburn, Ala., in connection with the Alabama Polytechnic Institute. It is announced that the additional funds needed for the erection of the building will be in hand by the first of the year, the new building to be known as **The Ramsay Hall of Engineering.**

COLORADO

The office of the secretary of state has supplied the information that the **Alamo Coal Co.**, represented by **George C. Manley**, Denver, has been incorporated for \$1,000,000. **William B. Lewis**, 40 Wall St., New York, and **Harry F. Nash**, Denver, are also mentioned as incorporators. Both are identified with the **Oakdale Coal Co.**, Mr. Lewis as president and Mr. Nash as vice-president and general sales agent. The latter is also well-known as the secretary of the Colorado-New Mexico Coal Operator's Association. The mine of the new corporation will be opened near the Kebler properties of the Colorado Fuel & Iron Co. at Tioga, near Walsenburg.

Benedict Shubart of Lindrooth, Shubart & Co., Denver, made a business trip to Chicago and other eastern points late in October.

ILLINOIS

Much interest has again been caused in the regions around Franklin and Williamson counties by the rumor that the **Big Muddy River** is to be dredged so that coal barges can come up from the Mississippi and coal shipped by water to points all along the river. The movement this time is said to be backed by some large interests, among them being **Edward F. Goltra** of St. Louis, owner of a large barge line on the Mississippi. The dredging of the river would no doubt be a big asset to the coal fields of southern Illinois, inasmuch as it would to a certain extent relieve the car shortage and make it possible to ship coal to Chicago and destinations an equal distance south, at least \$1 per ton cheaper.

Robert Clem, a resident of Herrin, has been named a member of the Illinois miners' examining board by Governor Small. The position involves attendance at the monthly examinations in Springfield and pays a salary of \$1,800 a year.

Fred W. Price, mine manager at the mine of the **Tamaroa & Little Muddy Coal Co.**, Tamaroa, was seriously burned in a gas explosion recently. He was hurriedly given medical aid and is expected to recover.

The **Consolidated Coal Co.**, St. Louis, with three mines in the Mt. Olive field one at Collinsville and one at Breese, has bought two steam shovel unloaders that will handle 1,000 tons of coal daily from cars. Tracks have been laid over a big acreage and screenings and nut from 3-in. down will be put in storage at central points to be taken up next spring and summer. This is caused by the poor market. It also indicates a belief on the part of some operators that there will be a good market for steam coal after April 1. The Consolidated will store several hundred thousand tons. The **Southern Coal, Coke & Mining Co.**, of St. Louis, blazed the trail by doing this pioneer work last winter. Its huge piles of storage coal were drawn on from April 1 to Aug. 1 and were to some extent the means of keeping the market from soaring on western Kentucky coals.

The **Rex Coal Mining Co.**, of Rock Island, has been incorporated with capital of \$20,000 and work has been begun on a mine one-half mile east of Warner. **H. E. Bishop** is president of the new company; **C. L. Hintz**, vice-president; and **C. W. Krueger**, secretary and treasurer. These men all live in Rock Island, and with **A. Hintz** and **H. V. Burt**, compose the board of directors. The lease obtained by the company consists of 600 acres.

It is stated that the **Kincaid Railway & Mine Supply Foundry**, of Kincaid, has been sold by the Peabody interests to **Duncan Brothers**, of Alton. It is also stated that the Kincaid plant will be operated in connection with the Alton plant, the latter employing over 500 men. The Kincaid factory has been closed since March 30.

The **Great Lakes Coal & Coke Co.**, Chicago, with a capital stock of \$125,000, has filed incorporation papers. The company will mine and deal in coal, coke, by-products, etc. The incorporators are: **Rushton L. Fordyce**, **George Shakel**, and **Walter Gramm**.

The **Buckley Coal Corporation** has been incorporated at Springfield. The company is capitalized at \$100,000. The concern will acquire mines and mine coal and other minerals. The incorporators are **George W. Schwaner**, **Carl H. Eschoff**, and **Edgar H. Buckley**.

J. D. Tracy, of the Department of the Interior, Bureau of Mines, who has been located at the Pittsburgh, Pa., experimental station, has been transferred to the Urbana station of the United States Bureau of Mines.

F. T. Lovering, for many years Western foundry representative of **Pickands-Brown & Co.**, Chicago, has resigned, joining the force of **Atwill-Makemson Coke & Coal Co.**, Chicago. Mr. Lovering will have entire charge of Western sales of foundry coke. **Atwill-Makemson Coke & Coal Co.** have recently been appointed exclusive sales representatives for the sale of **Sloss-Sheffield Steel & Iron Co.**'s solvay foundry coke, formerly handled by **David Evans & Co.**, Chicago.

INDIANA

The **Evansville Coal Co.**, of Evansville, has filed articles of incorporation and will engage both in wholesale and retail coal sales. The directors of the company are **Charles W. and Frederick Cook**, of Evansville, **Thomas C. Mullins**, mayor of Boonville, and **Samuel Ashby**, an attorney of Indianapolis.

The **Ramabo Coal Co.**, Indianapolis, has been incorporated with capital of \$25,000. Directors, **Charles S. Rauh**, **Simon J. Martenet**, **Ferdinand Born**.

IOWA

Fred Harper, and associates, of Givin, have organized the **Given Coal Co.** and are sinking a slope mine on the **G. R. Colville** farm; two miles northeast of Givin. The mine will be open Jan. 1.

The **Charles Schuler Coal Co.**, of Davenport, Iowa, is ready to operate a new mine two miles east of Alpha, Ill., on the **Burlington**, an extensive switching system having been laid out within the past month. The mine is located about two miles from the railroad. The new mine is preparing to operate on a daily capacity of 35 cars. Mining rights on more than 2,000 acres have been secured.

KENTUCKY

Recent state incorporations include the **Moss-Federal Coal Co.**, Pineville, capital \$50,000, **M. J. Moss**, **M. J. Moss, Jr.**, and **M. H. Moss**, incorporators; **English-Ridge Coal Mining Co.**, Rhea \$6,000, **J. J. Gregory**, **J. C. Fawbush**, and **W. H. Rankin**; **Ed White Coal Co.**, Saldee, \$5,000, **Edward White**, **John Stamper, Jr.**, and **A. M. Russell**.

It is reported from Letcher County that **J. L. McCormick**, of Big Stone Gap, Va., representing the **Mineral Development Co.**, a Philadelphia coal holding corporation,

owning considerable undeveloped coal acreage in eastern Kentucky, is now in Letcher County securing leases, with plans for large development of coal properties in the Elkhorn fields, but without much possibility of development work until next year.

According to a press dispatch, official notice has been made of the resignation of **S. A. Keller**, of Middlesboro, as president of district 19, U. M. W., embracing the southeastern Kentucky and eastern Tennessee district. It is reported that the resignation along with that of **J. W. Brooks**, vice-president, was accepted by National President **Lewis. William Turnbull**, national organizer, has been appointed district president, according to the report. The resignations and appointment became effective Nov. 1.

MARYLAND

For the time being it has been decided by the **Georges Creek Coal Co.** to abandon any attempt to operate the five mines of the company at Lonaconing, Md., and the company has released its organization and boarded up its mines. The company attempted to operate on a small scale but the few men at work having received threatening letters, failed to report and the company has thought it advisable to suspend operations until market conditions improve. This concern with offices in Cumberland will continue to operate its mines in West Virginia and western Pennsylvania.

MICHIGAN

Michigan's recently enacted fuel control law has not so far increased the available supply of coal, nor is credit given the legislation for any reduction in cost of fuel for domestic or steam use. Applications are being filed by brokers and other representatives of the coal trade who are required to take out state licenses. The applications embody information concerning the amount of coal or coke sold by the applicant last season, the amount sold so far this year and the quantity in possession of the dealer at the date of seeking a license.

MINNESOTA

The retail trade of the Northwest has been urged to authorize shipping coal from the docks to the interior in open-top cars, as a means of reducing the car shortage. Box cars are preferred, especially for winter shipping.

C. P. White, fuel distributor for the Northwest, is urging consumers in this territory to lay in their fuel now and to aid in distributing coal as promptly as possible.

The use of peat is urged upon farmers of Minnesota, who may have deposits available. Peat exists in three-fourths of the counties of the state. It is claimed to be the equal in heating value of air dried wood. At a test made recently at Duluth, however, peat as a fuel for heating was found to be a failure. Although cheaper in ton price than coal it was found that a much larger force of men was required to handle the peat, and that the bulk made shipping and stoking problems burdensome.

MISSOURI

The **Kansas City Light & Power Co.**, which owns 7,600 acres of coal land around **Prairie Hill**, has a force of surveyors at work selecting the route for a branch line from **Salisbury** to the coal fields. It is expected that the surveys will be completed in about two months. A survey also will be made from the coal fields to **Callao**, in **Macon County**, and the company eventually expects to extend the line to **Callao**, affording a connection with the **Burlington** road as well as the **Wabash**. No other line to the coal field is being considered at this time. As soon as the most feasible route is chosen the company will increase its activities in regard to the development of the coal field and will select the location for new shafts, the terminal of the road and other details.

Development of the coal field along the western border of **Bates County** has resulted in the founding of a new city a mile from the **Kansas-Missouri** line, known as **Worland**, and it already is taking on metropolitan airs. Rich deposits of coal lie along the state line. Several store buildings are under construction.

E. L. Barlow is opening up a mine southwest of **Boonville**. It will be the largest in that vicinity.

The city of St. Louis has contracted with the Egyptian Coal & Mining Co. of Marissa for 114,000 tons of 2-in. screenings at \$2.05, mines, until Sept. 1, 1923, for the water works, city hall and city hospital. The old contract price was \$1.65, with the same freight rate. For a while during the coal strike the city paid \$4@\$.25 for coal wherever it could get it. Other bids ranged \$2.14@\$.239.

Miller Brothers, operating mines near Mulberry, are prospecting over a wide area beginning 3 miles north of Minden, to locate the seam worked at the Minden operations.

Recent Missouri incorporations are: St. Louis Coal Co., of St. Louis, capital \$10,000, office Central National Bank Bldg.; Carter Coal Co., of Lexington, capital \$60,000; Carter-Mann Coal & Grain Co., of St. Joseph, capital \$5,000.

The West Missouri Power Co. has bought a tract of coal land north of Clinton and will begin stripping operations. The coal will be for the new power plant building there.

NEW MEXICO

The St. Louis, Rocky Mountain & Pacific Co., at Raton, has awarded to Stearns Roger Mfg. Co., Denver, a contract for furnishing the machinery for the new steel tippie at the Van Houten mine. The design of the plant was made under the direction of Frank A. Young, chief engineer of mines. It will permit a careful cleaning and preparation.

NEW YORK

The National Exposition of Power and Mechanical Engineering will open 1 p.m. Thursday, Dec. 7, 1922, at the Grand Central Palace, New York City, and will remain open until Dec. 13, except on the intervening Sunday. This exposition will be the first large scale attempt to display mechanical and power plant apparatus so that the present extraordinary state of development will be apparent not only to the highly trained technical man but to the layman with little knowledge of the severe problems involved in the engineering design and operation of combustion apparatus and power-generating machinery. There will be shown models of the various devices that enter into the process of taking coal from the mine, handling it at the power plant, turning it to steam, using the steam to generate electric power and sending the current out through wires to the consumer.

The Maher Collieries Co., of Cleveland, a mining concern in the No. 8 district, has engaged a Buffalo office in the Marine Trust Bldg.

Charles V. Critchfield, vice-president of the Domestic Coke Corporation of Fairmont which is now coking 1,000 tons of coal a day for byproduct purposes, has announced the appointment of G. R. Gande, of New York, a native of Amsterdam, Holland.

Lee Lichenstein, one of the well-known operators of the Georges Creek field, with headquarters at Cumberland, Md., was a recent visitor in the New York market.

OHIO

Alex Vowels, who is associated with the Cincinnati office of the Wallin's Creek Coal Co., was away recently on a trip of inspection of the Brady-Thacker Coal Co., near Williamson, in which he is interested.

Robert S. Young, treasurer of the Blue Diamond Coal Co. of Knoxville was a recent visitor at the offices of the Blue Diamond Coal Sales Co., in Cincinnati.

Recent Bluefield visitors to the Cincinnati market were: Frank Easley, president of the Bluefield Coal & Coke Co. and Pat Carey, of the Flat Top Fuel Co. Another visitor from the Pocahontas district was L. E. Woods, of the Crystal Block Coal Co.

Protests against retail coal margins fixed for their markets were received by State Fuel Administrator Neal from retail firms in Cleveland, East Cleveland, Lakewood, Cleveland Heights and adjacent territory. They petition for a reconsideration of the margin of \$2.75 allowed in Cleveland and the four suburbs named, as being too low to enable them to operate. The firms, according to the petition, not only ask reconsideration of the present rate, but seek one rate for delivery to the domestic consumer and another rate for delivery to office buildings and apartments. This request is based on the allegation that the demand for coal by the larger consumer is constant, that facilities for handling it are provided, that purchases and deliveries are in large lots and that cost of distribution is therefore, less than the individual householder. The companies further allege inability to fix prices as outlined by Fuel Administrator

Neal. The protesting firms are the Albright Coal Co.; the Esterbrook Coal Co.; the Brooklyn Coal & Coke Co.; the Schaefer-Suhr Coal Co.; the City Ice & Fuel Co.; the Zettlemeyer Coal Co.; the Cuyahoga Coal Co.; the Prospect Coal Co.; the Mares Coal Co.; the Landreth Bros. Coal Co., and P. J. Beckerel.

The Columbus Board of Education has awarded the contract for supplying 10,000 to 12,000 tons of Hocking 2 1/2-in. lump to the various school buildings to the Colonial Coal Co., at \$6.19 per ton delivered. When bids were opened Oct. 23 only one bid was received, that of the J. C. McIntyre Coal Co., at \$7.04 for the same grade of coal.

The Looney Creek Coal Co., a Kentucky producing company, has opened an office in Cincinnati in the Mercantile Library Bldg., in charge of A. E. Northrup.

The Columbus City Council has given the Board of Purchase authority to buy 7,100 tons of mine run or nut, pea and slack for the various city departments. Of the tonnage 3,600 will be for the municipal light plant; 1,800 tons for the waterworks department; 1,200 tons for the garbage disposal plant, and 500 tons for miscellaneous uses.

Papers have been filed chartering the Boyd & McFadden Mine Supply Co., Shadyside, with an authorized capital of \$25,000 to deal in all sorts of mine supplies. Incorporators are: B. F. Boyd, Charles A. Montgomery, Robert Boyd, C. A. McFadden and P. H. McFadden.

The Ruston Coal Co., Columbus, has been incorporated with a capital of \$50,000 by James Ruston, William Morgan, E. L. Preston, C. L. Preston and Aydry Ruston.

The Dow Coal Co., of Columbus, with an authorized capital of \$10,000, has been chartered by D. H. Armstrong and others to open a new mine at Floodwood, near Nelsonville. A large acreage has been obtained by lease which is being developed and a switch is being constructed. This is an extra thick seam and it is expected to be producing coal within a few weeks. Dow F. Shafer is at the head of this concern.

OKLAHOMA

Drills have been busy for many months proving up the coal lands lying northwest of Vinita, southeast of Centralia and west of Welch and Bluejacket, and veins have been found underneath a vast area. One transaction alone shows the magnitude of the expected development. It is the filing by a Chicago trust company of a mortgage for \$4,500,000 given by the Central Coal & Coke Co. on 70,000 acres of coal rights. To tap this coal country a railroad has been proposed extending the Miami electric line, going west through the coal fields to Pawhuska, and this line is only awaiting easier money to build. Another road has been proposed from Caney to Vinita. Still other lines have been proposed from the Missouri Pacific, in Kansas, into the coal fields.

The Pittsburgh-Midway Coal Co., which has been operating one steam shovel near Catale, has installed a second shovel. It is taking the coal out at a depth of about 14 ft. This company has bought outright several hundred acres of land and is pushing operations in an aggressive way.

PENNSYLVANIA

R. E. Garrett, J. E. Stewart, D. E. Thompson, E. F. Miller and Charles Bachman, comprising the mines committee of the Bertha Coal Co., Pittsburgh, have just returned from an extensive survey of the company's properties in Pennsylvania, Ohio, West Virginia and Kentucky. Despite many production handicaps the company will show an output of 500,000 tons greater than any previous year. This company is now outlining plans whereby production will be greatly increased in 1923.

The strikers' side of the seven-month industrial struggle in the non-union fields of the Berwind-White Co., was painted in vivid colors last week at the hearing conducted by Mayor Hylan's investigating committee from New York City. It looks to the trade as though it was simply a little grandstand play by union officials to get some notoriety and possibly sympathy and help from outside sources. Mining conditions are good in Windber and the Berwind-White Co. is paying as much, and in some instances more, than the union operators. It is understood the company has offered work to all who want it.

More than 30,000 acres of coal land was the prize involved in a deal which it is said is in progress between Henry Ford and the Wayne Coal Co. of Pittsburgh. Official figures were not obtained but well informed coal men placed the price in ex-

cess of \$50,000,000. There is no intimation as to when the deal would be closed.

James P. Walsh, vice-president of the Pittsburgh Coal Co., in charge of sales, has resigned.

The partnership conducting business under the name of the Phoenix Coal & Coke Co. has been dissolved. H. C. Schade will continue business under the old name.

At the annual meeting of the Pennsylvania State Chamber of Commerce, which convenes in Harrisburg on Nov. 14, W. D. B. Ainey, chairman of the public service commission will discuss the coal situation. Mr. Ainey is prepared to talk on all phases of the question and to discuss findings of the commission as to supply, price and distribution, disclosing facts and basic conditions of interest to both producer and consumer. The program contains an exceptional number of speakers, which include Governor William C. Sproul, former Governor Frank O. Lowden of Illinois, United States Senator David A. Reed, Dr. J. T. Holdsworth of Pittsburgh and Vernon F. Taylor of Indiana.

Shipments of anthracite for the coal year, April 1 to Sept. 30, 1922, as compared with the corresponding period last year, and reported to the Anthracite Bureau of Information by the initial transportation lines, were as follows:

	Coal Year to end of Sept., 1922	Coal Year to end of Sept., 1921
	Tons	Tons
P. & R. Ry.....	926,516	6,628,806
L. V. R.R.....	950,769	6,037,810
C. R. R. of N. J.....	345,447	3,282,575
D. L. & W. R.R.....	560,717	5,470,016
D. & H. Co.....	533,858	4,489,212
Penn. R.R.....	382,007	2,439,508
Erle R.R.....	497,841	3,696,454
N. Y. O. & W. Ry.....	128,427	778,937
L. & N. E. R.R.....	181,550	1,529,266
Total	4,507,132	34,350,584

Coal mining companies in Cambria County have filed appeals with the county commissioners from the triennial assessment on the grounds that the real estate was not assessed at the actual value thereof, being assessed without due regard to the valuation and assessment made of other similar properties in the country, but was assessed in excess of the value and assessment of such other properties. The following companies filed appeals: Holding of the Wilmore Coal Co., Richland and Adams townships and Scalp Level borough and Conemaugh, Croyle and Stonycreek townships; Berwind-White Coal Co., Richland and Adams townships and Scalp Level borough; Maryland Coal Co., Richland, Croyle and Adams townships.

Wellington M. Bertolet, of Reading, has been appointed as state director of anthracite and has reported to the State Fuel Commission to act in conjunction with R. C. Morse, Jr., director of transportation, and E. W. Parker, director of anthracite distribution. The appointment had been made in order to apportion equitably the allotment of anthracite among Pennsylvania consumers and to secure a fair adjustment of coal shipments to local dealers and thereby secure greater public relief in the present emergency.

TEXAS



LEE M. POOL
President Retail Coal Dealers' Association
of Texas

Lee M. Pool, of Greenville, is the new president of the Retail Coal Dealers' Association of Texas. Mr. Pool is a young and progressive retail coal dealer at Greenville, and is taking an active interest in association affairs.

VIRGINIA

The **Virginian Railway** is ready to proceed with construction of its new steel coal pier adjoining its present pier at Sewall's point. The new structure will cost slightly over \$3,000,000 and will require two years to build. Sanford & Brooks, of Norfolk and Baltimore, will do the piling and build the super-structure, while the Bethlehem Steel Bridge Corporation will build the pier. The Atlantic, Gulf & Pacific Co., of Norfolk, will do the dredging. Plans for the pier are to make it the most modern in the world.

Depression in the coal business was assigned as the reason for the closing Nov. 1 of the Norfolk offices of the **Willard Sutherland Corporation**. **Chester B. Koontz**, formerly with the West Virginia Coal Co., handled the business for the corporation.

WEST VIRGINIA

It has been possible to increase production to 5,000 tons per month at the plant of **Gilbert Smith** on Lick Fork in the New River field. Development work was not begun at this plant until late in June so that the owners of the mine believe that favorable progress has been made in getting the property on a productive basis.

The **Consolidation Coal Co.** has taken steps to build an industrial town of 2,500 homes at Coalwood, believed the largest enterprise of the kind ever undertaken. It will involve an expenditure of over \$10,000,000.

The following West Virginia coal corporations have increased their capital stock in the amount named or else have been granted authority to do so by the state secretary: **Virginia Fuel Co.**, from \$20,000 to \$100,000; **Home Coal Co.**, from \$25,000 to \$100,000; **Raleigh Wyoming Coal Co.**, from \$500,000 to \$3,500,000; **Columbia Coal Co.**, from \$90,000 to \$165,000. The **New Republic Coal Co.** has been granted authority to decrease its capital stock from \$250,000 to \$50,000.

The plant of the **Standard Thacker Coal Co.**, operating on the Polk Harris farm west of Williamson has changed hands, having been bought by a company in which Judge R. D. Bailey of the circuit court, Sheriff A. C. Pinson of Mingo County and Andy New are prominent stockholders. The purchase price is understood to have been approximately \$70,000.

The **Price Hill Collieries Co.**, operating near Mt. Hope, is adding new equipment to its plant and has placed a contract with the **Fairmont Mining Machinery Co.**, for a three-track shaker screening outfit, equipped with loading booms.

In line with other improvements being made at the plant of the **Cambria Coal Co.**, of Clarksburg, the object of which is to increase the productive capacity of the mine, a bar screen outfit is being added to the equipment at the company's plant.

Charleston capitalists have launched the **Gilbro Coal Co.**, the offices of which are to be at Charleston. This concern has a capital stock of \$50,000. Active in organizing the company were W. M. Gillie, Duke W. Hill, P. S. Stewart, S. H. Harrison and T. Brooke Price, all of Charleston.

Organization of the **William Ann Coal Co.** of Huntington presages operations on a large scale, this company being capitalized at \$200,000. Interested in the new concern are: Joseph H. Bowen, and E. S. Baker of Bramwell; D. T. Prichard and W. E. Prichard of Huntington; D. H. Prichard of Cincinnati.

Owing to the fact that they did not like one of the teamsters employed at one of the plants of the **Gilbert and Davis** interests on **Scott's Run** in Monongalia County, approximately 300 miners went on strike on Oct. 26, and for a time refused to work, notwithstanding the fact that officials of the union informed them they were violating the terms of the contract made with the operators. Matters even went so far that the president of sub-district No. 4 conferred with International President John L. Lewis with a view to having the charter of local No. 4775 on **Scott's Run** revoked. Later, officials in the union went to **Scott's Run** to talk to the men and to induce them to return to work without further violation of the union contract.

For his participation in the attacks on **Willis Branch** during a period of two years and particularly for his part in the conspiracy to remove a machine gun from the station of the **Virginian Ry.**, at Pax, **George Barrett**, an international organizer of the United Mine Workers for district No. 29 was sentenced in the circuit court of Pocahontas County, during the last week of October, to serve six years in the West Virginia State Penitentiary. Some of those

implicated in the plot turned state's evidence and it was largely on their testimony that the jury found a verdict of guilty. "Flat" Williams, one of the witnesses for the state, testified as to his part in the plot but stated that he thought the machine gun might have belonged to Barrett since he had been told that guns were being shipped in to aid the union cause.

W. E. Deegans, who is widely interested in southern West Virginia coal properties is one of the leading figures in the newly organized **Beda Smokeless Coal Co.**, which will have its principal office at Huntington. This company has an authorized capital stock of \$25,000. Others interested in the new corporation are: Kathryn Deegans, Huntington; John B. Hofmeyer, Fort Worth, Tex.; J. P. Chapman and M. A. Chapman, of East Bank.

CANADA

"The coal measures of Vancouver Island" is the subject of a report prepared by Dr. J. D. Mackenzie, head of the B. C. Office, of the Canadian Geological Survey, who has been engaged in the indicated researches for the past two years. He is of the opinion that the amount of recoverable coal on the island is considerably below what has been estimated. He points out that there are three workable coal horizons in the Nanaimo district, and only one in the Comox district, the latter lying over the pre-cretaceous or barren formation and disturbed by protrusions of the latter in places.

Finding the sale of Welsh coal to be dragging, the Brantford, Ont., City Council has reduced the price to \$18 per ton. Niagara Falls, Ont., coal dealers have complained that in their purchases of coal supplies they are compelled to pay a freight charge of 70c. per ton for haulage across the Suspension Bridge, a matter of a few hundred feet. Fuel consumers on the Canadian side, however, can order from Niagara Falls, N. Y., dealers, and have it transported across the bridge in wagons for something like 15c. per ton. The Ontario Fuel Commissioner has advised that he has no jurisdiction in the matter.

Dr. W. H. Collins, Director of the Geological Survey, Dominion Department of Mines, on his return from a three weeks' visit to the various field parties who are at work surveying the mineral industry of Nova Scotia and New Brunswick, reports new coal beds, the existence of which was unsuspected, and deposits of oil shale in both provinces. They are not yet being mined, but constitute the basis of an important future mining industry, he says.

William A. Sherman, president of district 18 of the United Mine Workers, has announced that at the close of the present agreement between the operators and the union the latter would demand a continuation of the present wage scale, but with a six-hour day and a five-day week, instead of an eight-hour day and a six-day week. The present agreement terminates on March 31, 1923. The district includes eastern British Columbia and southern Alberta.

A special committee has been appointed by the Dominion Government to investigate the possibility of adapting Canadian coal to furnace use as a means of relieving the fuel situation. The members are Dr. Charles Camsell, Deputy Minister of Mines, chairman; F. C. C. Lynch, chief of the Natural Resources branch of the Interior Department; secretary; J. B. McLeish, E. F. Haanel and D. B. Dowling of the Mines Department; and J. B. Challes, chairman of the Dominion Water Power Board. A proposal to relieve the situation is the importation of the best grades of Welsh anthracite during the summer months. Dr. Camsell believed that Welsh anthracite of the finest quality free of slack would be available for transportation to Canada commencing in April of each year. This coal has an ash content of approximately 1 per cent as compared with the ash content of American anthracite, which sometimes runs as high as 25 per cent according to the analysis of government experts. It was understood that the summer importation of Welsh coal would involve shipping the anthracite as it comes from the mines and doing the screening and sizing in Montreal. Dr. Camsell intimated that the people of Quebec and Ontario need not look for relief immediately as it could only come after careful study and preparation.

A statement issued by the Dominion Bureau of Statistics shows that the output from Canadian mines during July amounted to 858,000 tons, an increase of 47,000 tons over the preceding month but short of the average record for July in the three preceding years by 203,000 tons, or 19 per cent. The output for the first seven months

of the year was less by 1,122,000 tons than the average for the same months of the last three years. Imports in July were 447,000 tons, a decline of 13 per cent below the record for June. Imports during the first seven months of the year were 41 per cent below the 3-year average for the same period. Exports in July were 243,000 tons, as compared with 90,000 tons in June. The record for the calendar year on the other hand was 20 per cent below the average for the seven months period of the last 3 years. The net result of the movements of coal during July was that the amount made available for consumption in Canada was 1,062,000 tons, as compared with a 3-year average for July of 2,974,000 tons. For the first seven months of the year the amount made available for consumption was 11,669,000 tons, as compared with a 3-year average for the same period of 16,230,000 tons.

WASHINGTON, D. C.

Bids are requested by the Navy Department for the supply of coal to June 30, 1923 at various points in New York, Massachusetts, New Jersey, Pennsylvania, Virginia, Maryland and the District of Columbia, under Schedule 265, Bureau Requisition 29 N S A, Bureau S and A. Bids will be opened Nov. 14, 1922.

The United States Civil Service Commission announces an open competitive examination for laboratorian on Dec. 6 and 7, 1922. Vacancies in the federal classified service throughout the United States, including the Departmental Service, Washington, D. C., at \$1,200 to \$1,500 a year, or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Applicants should at once apply for Form 1312, stating the title of the examination desired.

Not later than Dec. 1 officials of the American Mining Congress expect to have the industrial co-operation plan which was outlined at the Cleveland convention functioning in its preliminary phases. The method of procedure contemplates a thorough study of conditions in all mining fields by sectional committees which will pay particular attention to the different systems of welfare work and other forms of co-operation between employers and employees already in operation. Twenty-two sectional committees probably will be named, each working under the direction of a chairman and reporting to a general chairman. In these regions where more than one class of mining is in operation, it is probable that subcommittees will be named from the sectional committee, each subcommittee to undertake a study of the work and needs of a specific type of mining.

The United States Supreme Court has advanced the argument on the constitutionality of the Kohler mine cave law to Nov. 13. Ordinarily the case would not have been reached for a year at least. The request for the advancement of the case was made recently by attorneys W. L. Pace and H. J. Mahon. The action was started by the latter against the Pennsylvania Coal Co. and in the Supreme Court of Pennsylvania the law was declared valid.

The resignation of Dr. George Otis Smith, as director of the Geological Survey, tendered in order to devote his entire time to the Federal Coal Fact Finding Commission, was announced recently at the White House with the statement that it was hoped he would be able to resume his work as director when the commission completes its report.

The crew of mine rescue car No. 3 of the United States Bureau of Mines recently conducted classes in rescue and first-aid training at Phillipsburg, Houtzdale and New Millport, Pa. This car was visited by several thousand persons while on exhibition at the Warren County Fair, Warren, Pa. First-aid classes have been conducted by the personnel of Car No. 6 at Saginaw and Bay City, Mich. Car No. 7 recently conducted first-aid training at Albia and Brazil, Iowa. At the West Virginia State Fair at Wheeling, demonstrations of the use of oxygen breathing apparatus in a smoke chamber by the crew of Car 8 were witnessed by approximately 20,000 persons. Later, at the West Virginia Fair at Clarksburg, similar exhibitions were witnessed by probably 15,000 persons. It is estimated that 40,000 persons, a large percentage of whom were miners, visited the complete rescue station displayed by the Bureau of Mines at the Coal and Industrial Exhibit at Huntington, W. Va. Car No. 8 co-operated with the West Virginia Department of Mines in exhibition work at the Summers County Fair at Hinton, where approximately 5,000 visited the car.

Traffic News

The Cincinnati, Indianapolis & Western R.R. is now transporting about 100 cars of coal a day, a portion of which is used by the company and the remainder being sold. This company purchased some months ago 20 miles of the abandoned C. & E. I. R.R., better known as the Chicago & Indiana Coal R.R., the trackage from West Union to Mecca being taken over. This short stretch of track penetrates some excellent coal fields.

The L. & N. is giving cheer to the coal industry with its announcements of new power, new cars and other new equipment purchased, and its plans for development of its lines, especially those into the eastern Kentucky fields. The expenditure of about \$20,000,000 has been authorized during the past year of which half will go into channels of direct benefit to coal shippers.

The I. C. C. has awarded reparation to several Clarksville, Tenn., concerns, who filed complaint showing that rates from western Kentucky mines were unreasonable, from June 25, 1918, to March 1, 1920. The Clarksville Ice & Coal Co., Red River Iron Works, and several others were parties to the complaint.

Reparation has been awarded the Indiana Board & Filler Co. to cover unreasonable rates charged for the movement of coal from certain mines in Indiana to Vincennes and Terre Haute. The I. C. C. finds that the rates were unreasonable to the extent that they exceeded 45c. for hauls of ten miles and under; 60c. for hauls of ten and not over thirty miles, and 70c. for hauls of over thirty miles.

The rate charged between Missabe Junction, to Steelton, Minn., was assailed unsuccessfully by the Minnesota Steel Co., of Duluth. The Interstate Commerce Commission found that the rates charged were not unjust or unreasonable.

The commission has held that the rates on coal from the anthracite region to certain points in northern New York are not unreasonable or otherwise unlawful.

The rates charged on coal from mines in central and southern Illinois to Edgebrook and Morton Grove, Ill. are held to have been unreasonable in a report prepared for the commission by Examiner Hosmer.

The case of the Pittsburgh Coal Producers' Association versus the P. C. C. & St. L. R. R. was considered at a hearing conducted Nov. 10 at Pittsburgh by Examiner Eshelman.

An order relative to car supply to wagon mines, similar to that made by the I. C. C. has been issued by the Public Service Commission of Pennsylvania. Upon any day when any common carrier by railroad is unable to supply mines upon its lines with the required number of open-top cars such cars shall not be furnished or supplied by it to any mine which customarily does not load or is unable to load such cars with coal within 24 hours from and after the time of placement until all mines upon the lines of any such carrier have been fully supplied with such cars.

Purchase of 1,000 coal cars is a part of the program of the Virginian Railway for the handling of additional coal from the Winding Gulf and other territory in southern West Virginia, according to an announcement just made by Vice-President Hix of that road. Additional machinery is also to be installed at the Princeton shops although the company has announced that it will not make any compromise with its striking shopmen.

Recent Patents

Method of and Apparatus for Treating Timber. August Meyer, Minneapolis, Minn., and Philip R. Walsh, St. Louis, assignors to Duplex Holding Co., St. Louis, Mo., 1,422,119. July 11, 1922. Filed Aug. 3, 1921; serial No. 489,471.

Coking of Coal. Stewart R. Illingworth, Treforest, Wales, 1,422,269. July 11, 1922. Filed March 1, 1921; serial No. 448,871.

Tubular Rock Drill. Hans Hundrieser, Halensee, near Berlin, Germany, 1,422,361. July 11, 1922. Filed Jan. 19, 1921; serial No. 438,507.

Method of and Means for Distilling Coal. A. W. Helmholtz, Harrisburg, Ill., assignor to Continuous Process Coke Co., Chicago,

Ill., 1,422,706. July 11, 1922. Filed Sept. 19, 1919; serial No. 324,565.

Apron for Coke-Oven Doors. Leman E. Doty, Elyria, Ohio, and F. H. Smith, Brentwood, Borough, Pa., 1,422,756. July 11, 1922. Filed Feb. 7, 1921; serial No. 442,988.

Art of Extracting Coal in Mines. Herman Mack, Hamm, Germany, 1,422,874. July 18, 1922. Filed Oct. 3, 1917; serial No. 194,519.

Trade Literature

Power Hoe (Improved Drag Scraper). Link-Belt Co., Chicago, Ill. Book No. 444. pp. 21; 6 x 9 in.; illustrated. Describes how the power hoe takes coal to storage from pile alongside railroad track and also how it is reclaimed from storage by this device.—Advertiser.

Sullivan "WB-3" Air Compressors. Sullivan Machinery Co., Chicago, Ill. Bulletin 75-E. Pp. 12; 6 x 9 in.; illustrated. Among the advantages claimed for these machines is economy of steam, that the efficiency of its air end is higher, that its working parts are more accessible and that it is less expensive.—Advertiser.

Sullivan Power-Driven Air Compressors. Sullivan Machinery Co., Chicago, Ill. Bulletin 77-E. Pp. 16; 6 x 9 in.; illustrated. Describes the power-driven wafer valve air compressors, class WG-6, single stage; class WH-6, two-stage belted; and class WK-6, direct motor driven.—Advertiser.

Relays. General Electric Co., Schenectady, N. Y. Bulletin No. 47,606. Pp. 25; 8 x 10 in.; illustrated. Covers the operation and general application of relays, with particular consideration to the selection of relays for the protection of systems against troubles due to line faults.—Advertiser.

The Value of Accurate Testing of Coal. Pittsburgh Testing Laboratory, Pittsburgh, Pa. Bulletin 24. This is a four-page pamphlet, 8 x 11 in., with a page of illustrations showing the proper method of preparing a sample of coal by hand.

The Cochrane Combined Catalog. H. S. B. W.-Cochrane Corp., Philadelphia. Publication No. 1080; pp. 210; 6 x 9 in.; illustrated. Describes this concern's varied line of open feed-water heaters, V-notch meters, metering heaters, flow meters for fluids in pipes, water softeners (including both hot and cold processes) pressure filters, back-pressure valves (including valves for atmospheric relief service and flow valves) steam and oil separators, drainers or traps. Among the new devices shown is a de-aerating heater and a flow meter for measuring the flow in pipes.

Pneumatic Collecting and Conveying Systems. B. F. Sturtevant Co., Hyde Park, Boston, Mass. Catalog No. 291. Pp. 72; 8 x 11 in.; illustrated. Covers the application of Sturtevant fans to air-washing systems, removal of dust from coal breakers and grinding, buffing and polishing wheels, the conveying of pulverized coal and the removal of fumes and gases. It also contains 17 pages of tables on how to find the size of fans, the suction, volume, r.p.m. and horsepower for any system, cubic feet of air handled per minute, size of pipe and ducts used, etc.

Line-Shafting Equipment. The Medart Co., St. Louis, Mo. Catalog No. 43. Pp. 192; 5 x 7 in.; illustrated; tables.—Advertiser.

Federal Fuel Control Notes

A conference of Fuel Administrator Spens and his special counsel, C. J. Hepburn and Ohio Federal Representative Commander H. B. Bouson, with Governor Harry L. Davis, Ohio Fuel Administrator C. J. Neal and Attorney General John C. Price was held at Columbus Nov. 1 for the purpose of securing coal supplies for the people of Ohio, in view of the fact that a large part of Ohio-produced prepared sizes are going outside of the state where higher prices are obtainable. For some time Ohio Administrator Neal has been asking Mr. Spens to relieve the Ohio situation, which is becoming acute. The conference was the result of the threat of Ohio Administrator Neal that unless some relief was forthcoming he would seize Ohio mines as is provided in the emergency measure enacted at a special session of the Ohio legislature. A number of Ohio operators joined in the conference and when the question of shipping their product within the state was put up to them there was a general

willingness to co-operate. Administrator Spens stressed the matter of preventing cross hauling, as it were, and thus relieve the railroad situation. The conference adjourned without any definite action taken. It was announced that there would be no increases in the Ohio fair price list at this time as these prices were believed to be fair and reasonable.

The first instance of submission of a coal price dispute case by the Pennsylvania Fuel Commission to the federal fuel authorities occurred Oct. 28, when W. D. B. Ainey, chairman of the Pennsylvania commission turned over to Fuel Director Spens the case of the Mill Creek Coal Co., selling through the Delano Coal Co., of Philadelphia. Chairman Ainey made the following statement of the case: "The prices for anthracite charged by the Mill Creek company, selling through the Delano company, being largely in excess of prices fixed in Governor Sproul's proclamation, have been complained against by the fuel administrators of several states. These companies have been requested, and opportunity offered them to appear before the Fair Practices Committee to exhibit their cost figures and to justify their prices. By report of that committee these companies have neglected or refused to present themselves before that body. The recommendation of the Fair Practices Committee is that they be certified to the Federal Fuel Administrator at Washington, for such action as he thinks expedient, and in this the Pennsylvania Fuel Commission concurs. I have accordingly today submitted the Fair Practices Committee's report to Fuel Director Spens."

Obituary

William S. Porteous, age 85 years, died at Amherst, N. S., Oct. 23. He was born in New York and came to Nova Scotia 30 years ago and had been in the coal business in Amherst for the last 24 years.

Byran G. Tighe, pioneer in the coal industry in Chicago, died recently. He was vice-president of the Bickett Coal & Coke Co.

Melvin E. Lynn, sales manager for the Campbell's Creek Coal Co. at Cincinnati died suddenly at his home on Oct. 29. He was a native of McKeesport, Pa., and the son of a coal operator of western Pennsylvania. He joined the forces of the company nearly forty years ago. Mr. Lynn was an ardent supporter of the idea of coal transportation by water and was a member of the Ohio Valley Improvement Association.

John Bergoyne Foote, president and treasurer of Foote Bros. Gear & Machine Co., Chicago, died recently. He was known all over the country not only for his skill as a gear maker and inventor for transmission and other machinery but for his keen interest in anything that would further efficiency in machine operation.

Coming Meetings

The Illinois Mining Institute will hold its next meeting Dec. 1 and 2 at Urbana, Ill. Secretary, Martin Bolt, Springfield, Ill.

Pittsburgh Wholesale Coal Association will hold its annual meeting Nov. 14, at Pittsburgh, Pa. Secretary, W. R. Crowthers, Pittsburgh.

West Virginia Coal Mining Institute's annual meeting will be held Dec. 5 and 6, at Huntington, W. Va. Secretary, R. E. Sherwood, Kanawha Bank Bldg., Charleston, W. Va.

Harlan County Coal Operator's Association will meet Nov. 15, at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

The National Industrial Traffic League will hold its annual meeting Nov. 15 and 16 at the Hotel Commodore, New York City. Secretary, J. H. Beek, Chicago, Ill.

Coal Mining Institute of America will meet Dec. 13, 14 and 15 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., 911 Chamber of Commerce Bldg., Pittsburgh, Pa.

National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York City, Dec. 7-13. Manager, Charles F. Roth, Grand Central Palace, New York City.

Canadian Institute of Mining and Metallurgy, annual Western meeting Nov. 15-17, at Vancouver, B. C. Secretary-Treasurer, G. C. Mackenzie, Montreal, Quebec, Can.